BAFS 14TH ANNUAL SCIENTIFIC MEETING

Balkan Academy of Forensic Sciences

BALKAN ACADEMY OF FORENSIC SCIENCES

14TH ANNUAL SCIENTIFIC MEETING
05 - 08 OCTOBER 2023

ABSTRACT BOOK

Balkan Academy of Forensic Sciences
14th Annual Scientific Meeting
Abstract Book

Editors:
Zeynep Betül Usta
Sotirios Kalfoglou
Mehmet Akif İnanıcı

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Balkan Academy of Forensic Sciences 14th Annual Scientific Meeting Abstract Book 2023
Edited by Zeynep Betül Usta, Sotirios Kalfoglou, Mehmet Akif İnanıcı

Children's Protection Research and Implementation Centre

2023

Opening Remarks

Dear colleagues, welcome to Istanbul, one of the most beautiful cities in the world.

First of all, we are delighted to see you at our congress. I am certain that we will share our knowledge and experiences during this event, just as we do at all the Balkan Academy of Forensic Sciences Meetings. I'm confident that this meeting will be highly beneficial. I would like to express our gratitude to our colleagues from different countries who have honored us, especially our keynote speakers. Thank you very much to all of them.

Now, I would like to share some essential information about our congress. The current number of participants is 275, with 130 being Turkish and the rest coming from 25 different countries. This is the first BAFS meeting with such diverse international attendance. Out of the total participants, 210 are here in person, while the others will be joining us via the internet. We received a significant number of presentation applications, and our scientific advisors have reviewed and selected the most suitable ones. The congress will feature 85 accepted oral presentations and 50 posters. We look forward to engaging with all of them throughout the event.

In addition to these presentations, we have organized two workshops and a panel, which promise to provide valuable insights.

Finally, I would like to extend my gratitude to the entire team that worked diligently in preparing for this event and will continue to support it. Most notably, I want to express my deep appreciation to Prof. Kalfoğlu and her team. Thank you, Ersi. I understand that you all must be quite exhausted.

Lastly, it's important to remember the founders of the academy, Prof. Manolis Michalodimitrakis and Prof. Yaşar Işcan, as well as the recently deceased member of the Board of Directors, Prof. Mete Gülmen. Their contributions are truly invaluable.
My esteemed colleagues, I wish you a productive and enjoyable congress, and I offer my love and respect to each and every one of you. Thank you very much.

Prof. Dr. Mehmet Akif İnanıcı
Conference President
Marmara University
School of Medicine, Internal Medical Sciences
Department of Forensic Sciences

Program

Thursday, October 5, 2023
Venue: Crowne Plaza - Harbiye

Poster exhibitions are open for viewing at any time on our website

09:00 – 10:00	**ON–SITE REGISTRATION**
10:00 – 10:30	**OPENING CEREMONY**
10:30 – 10:50	**KEYNOTE** **Jason Payne James** Specialist in Forensic & Legal Medicine Faculty of Forensic & Legal Medicine (Royal College of Physicians)
10:50 – 11:50	**FORENSIC PATHOLOGY SESSION I** **Moderator** **Peter Vanezis**
10:50 – 11:00	**Using the Method of Mueller Matrix Polarization Tomography of Histological Sections of Structured Biological Tissues to Determine the Degree of Blood Loss** Oleksandr Pavliukovych, Viktor Bachynskyi, Kyrylo Shilan, Nataliia Pavliukovych *Ukraine*
11:00 – 11:10	**Conventional vs Virtual Autopsy: A Preliminary Report** Amar Jyoti Patowary, D. Slong , A.D. Roomay, Kishanth Sankar, Prabal Das *India*
11:10 – 11:20	**Gfap as a Valid Post–Mortem Marker in Traumatic Brain Injury Deaths** Eva Montanari, Marco Moretti, Angelo Montana, Busardò, Francesco Paolo Giorgetti *Italy*
11:20 – 11:30	**Gunshot Wounds and Mathematical Models, An Experimental Study** Anisa Gradascevic, Emina Resic, Bruno Franjic, Arif Salkic, Zoran Mihailovic, Stefan Büttner, Nermin Sarajlic *Germany*
11:30 – 11:40	**Dural Sinus Thrombosis in the Evolution of Pelvis and Limbs Fractures: A Case Report** Oana–Maria Isailă, Sorin Hostiuc *Romania*
11:40 – 11:50	***Q&A***

11:50 – 12:00	**BREAK**
12:00 – 13:00	**FORENSIC PATHOLOGY SESSION II** **Moderator** **Nermin Sarajlic**
12:00 – 12:10	**Acute Necrotizing Esophagus (Black Esophagus) Following Suicidal Ingestion of Sodium Nitrite** Antonios Metzikofis, Leda Kovatsi *Greece*
12:10 – 12:20	**Death by Accidental Intravenous Administration of Gasoline** Pero Bubalo, Anita Galić, Marina Nestić, Marija Baković, Davor Mayer, Slavica Martinović *Croatia*
12:20 – 12:30	**An Interesting Case of Self–Induced Starvation – A Case Report** Martina Tkalčić, Davor Mayer, Tena Sadlo, Ines Šunjić *Croatia*
12:30 – 12:40	**Exploring the Controversy Surrounding the Recognition of Shaken Baby Syndrome as a Cause of Death** Mishaal Fatima, Sajeel A. Shah, Nikolas P. Lemos *United Kingdom*
12:40 – 12:50	**Medical Malpractice in Male Circumcision Operations** Taner Güven *Türkiye*
12:50 – 13:00	***Q&A***
13:00 – 14:20	**Lunch Break**
14:20 – 15:10	**FORENSIC GENETICS SESSION** **Moderator** **Emel Hülya Yükseloğlu**
14:20 – 14:30	**Evaluation of HUMDNA Typing (Yanhuang–PCR) Kit for Usability and Reliability in Forensic Sciences and Comparison with Two Different PCR Kits (Identifiler Plus & Globalfiler)** Nazlı Hölümen, Ömer Karataş, Sotiri Kalfoğlu, Gavril Petridis, Emel Hülya Yükseloğlu, Ersi Kalfoğlu *Türkiye*

14:30 – 14:40	**Importance of Quality Control in Sample Preparation Workflow of Forensic Degraded Samples for Massively Parallel Sequencing (MPS) Using Ion Torrent GeneStudio™ S5 Platform** Viktorija Belakaposka Srpanova, Natasha Bitoljanu, Aleksandar Stankov, Zlatko Jakovski *Republic of North Macedonia*
14:40 – 14:50	**Comparing Forensic Science Procedures: Physical Assessment, Sample Collection and Genetic Testing in Turkey and European Countries** İlksen Sarı O, Birgül Tüzün, Özlem Bülbül, Gönül Filoğlu *Türkiye*
14:50 – 15:00	**Genomic Surprizes: Unrevealing the Mystery of Non–maternal Fetal DNA** Fatma Ebru Yüksek, Ufuk Yüksek, Emel Hülya Yükseloğlu *Türkiye*
15:00 – 15:10	***Q&A***
15:10 – 15:20	**BREAK**
15:20 – 15:40	**KEYNOTE** **Rakesh Gorea** Professor & Head, Forensic Medicine & Toxicology Gian Sagar Medical College, Ram Nagar, Rajpura, Patiala, Punjab, India
15:40 – 17:10	**FORENSIC NURSING SESSION** **Moderator** **Nurcan Hamzaoğlu**
15:40 – 15:50	**A Contemporary Response to Humanitarian and Human Rights** Virginia A. Lynch *U.S.A.*
15:50 – 16:00	**Forensic Nurse Hospitalist: The Comprehensive Role of the Forensic Nurse in a Hospital Setting** Kelly Berishaj, Christina M. Boyland, Kristin Reinink, Virginia Lynch *U.S.A.*
16:00 – 16:10	**Responding to Interpersonal Violence: Challenges, Collaboration and Education for Nurses** Valeria Kaegi *Switzerland*
16:10 -16:20	**Forensic Nursing in Portugal** Albino Gomes *Portugal*

16:20 – 16:30	**Forensic Nursing Science: A Critical History in Kosovo** Venera Mehmeti *Kosovo*
16:30 - 16:40	**Building Quality Metrics For Pediatric Forensic Nursing Programs** Jamie Ferrell *U.S.A.*
16:40 – 16:50	**Consequences of Presence of Forensic Nurses in Health Care System** Fatemeh Ghofrani *Iran*
16:50 – 17:00	**Slaying Dragons: Prevention of Adolescent Human Trafficking** Lauren Wegener *U.S.A.*
17:00 – 17:10	***Q&A***

Friday, October 6, 2023
Venue: Sismanoglio Megaro - Taksim

10:00 – 10:20	**KEYNOTE** **Nikolas P. Lemos** Director, Cameron Forensic Medical Sciences, William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University, London
10:20 – 12:00	**FORENSIC TOXICOLOGY SESSION** **Moderator** **Aristidis Tsatsakis**
10:20 – 10:30	**Drugged Driving in Bulgaria: Current Trends and Challenges** Silviya Stoykova, Vasil Atanasov *Bulgaria*
10:30 – 10:40	**Impact of Diazepam–Alcohol Cocktail on the Development and Morphometrics of Two Important Blowflies: A Forensic Entomotoxicological Perspective** Sapna Sharma, Tapeshwar Bhardwaj *India*
10:40 – 10:50	**Implementations of Substance Analysis in Urine for Probation Cases: Comparison of Random Test and Appointment Test** Yusuf Kurtulmuş, Melike Aydoğdu, Serap Annette Akgür *Türkiye*
10:50 – 11:00	**Analgesia in Military–Related Mass Casualty Events – Current Trends and Future Directions in Battlefield Pain Management** Georgi Semovski, Ahmed Nedzhib, Dimo Dimov *Bulgaria*
11:00 – 11:10	**Safety Evaluation of Makeup Toys: Assessment of Selected Toxic Elements** Simge Zengin, Mihriban Dilan Kılıç, Murat Yayla, Selda Mercan *Türkiye*
11:10 – 11:20	**Ricin Poisoning – A Rarity in the 21st Century – Case Report** Stanimir Tepavski, Shasine Veli, Lyudmila Neykova–Vasileva, Silviya Stoykova, Rositsa Kostandieva, Vasil Atanasov *Bulgaria*
11:20 – 11:30	**Effects of Diclofenac Sodium on the Development of *Musca domestica* (Diptera: Muscidae) and its Forensic Relevance** Filiz Kiper, Meltem Kökdener *Türkiye*

11:30 – 11:40	**Recent Judgments with regards to Medical Negligence** Suresh Kumar Dhattarwal *India*
11:40 – 12:00	***Q&A***
12:00 – 12:10	**BREAK**
12:10 – 13:20	**ANTHROPOLOGY SESSION** **Moderator** **Şeyda Şebnem Özcan**
12:10 – 12:20	**Exploring the Impact of Forensic Anthropology on Earthquakes: A Disaster Anthropology Perspective** Evrim Tekeli *Türkiye*
12:20 – 12:30	**Sex Estimation Using Humerus, Radius and Ulna in the Contemporary Croatian Population Sample** Anton Mažuranić, Petar Škavić, Pero Bubalo, Marija Baković *Croatia*
12:30 – 12:40	**Evaluation of Frontal, Maxillary, and Sphenoid Sinus Dimensions Using Computed Tomography for Sex Estimation in Adult Turkish Population Sample** Buğra Kaan Yazgı, Erdem Hösükler, Mustafa Hızal, Zehra Zerrin Erkol, Seyit Ali Kayış *Türkiye*
12:40 – 12:50	**Anthropology –Forensic Considerations in the Recovery of Human Remains From Aquatic Environments** Subha Ali, Sajeel A Shah, Nikolas P. Lemos *United Kingdom*
12:50 – 13:00	**Evolution of Forensic Anthropology in Romania and the International Standards in Forensic Identification** Madalina Maria Diac, Nona Girlescu, Anton Knieling, Simona Irina Damian, Irina Streba, Diana Bulgaru Iliescu *Romania*
13:10 – 13:20	***Q&A***
13:20 – 14:20	**LUNCH BREAK**

14:20 – 15:20	**PANEL** **Challenge with Controlled Drugs (Gabapentanoids, Benzodiazepines, Opioids etc.) at Antidrug Effort** **Moderator:** Nikolas P. Lemos • **General Situation for Controlled Drugs and Legislations in Türkiye** Prof. Serap Annette Akgür *Ege University Institute on Drug Abuse, Toxicology and Pharmaceutical Science* • **Controlled Drugs and Workplace Drug Testing– Assistant** Prof. Rukiye Aslan *Ege University Institute on Drug Abuse, Toxicology and Pharmaceutical Science* • **Controlled Drugs and Waste Water Analysis –** Prof. Nebile Dağlıoğlu *Ankara University Forensic Sciences Institute* • **Controlled Drugs and Challenge on Analysis** Lecturer Duygu Yeşim Ovat *Ege University Institute on Drug Abuse, Toxicology and Pharmaceutical Science*
15:20 – 15:30	**BREAK**
15:30 – 15:50	**KEYNOTE** **Adarsh Kumar** Dept. of Forensic Medicine & Toxicology Faculty I/c, Forensic Anthropology and Forensic Radiology AIIMS, New Delhi India
15:50 – 17:30	**CRIMINALISTICS SESSION** **Moderator** **Naim Uka**
15:50 – 16:00	**CANCELED** **The Role of Vegf and Hmgb1 in Wound Age Determination – A Pilot Study** Natasha Bitoljanu, Belakaposka Srpanova V., Stankov A., Jakovski Z. *Republic of North Macedonia*
16:00 – 16:10	**Use of Innovative Sample Dryer for Efficient Sample Preservation in Forensic Investigations: An Experimental Study** Raghvendra Kumar Vidua, Arneet Arora, Jayanthi Yadav *India*

16:10 – 16:20	**The Application of Environmental Design Principles in Preventing Crime and Reducing the Fear of Crime in Cities: The Case of Kocaeli, Turkey** Buşra Özen, Tuğba Ünsal Sapan, Sevil Atasoy *Türkiye*
16:20 – 16:30	**Optimization of Solid – Phase Microextraction Technique for the Recovery Efficiency of Gasoline** Mihriban Dilan Kiliç, Murat Yayla, Selda Mercan *Türkiye*
16:30 – 16:40	**Revenge Digital Pornography: A Criminalistic Perspective** Ceren Küpeli *Türkiye*
16:40 – 16:50	**Correlation Between Applied and Measured Forces by Using an S–Pen in Digitally Captured Signatures** Aysegül Şen Yılmaz, Ali Gelir, Faruk Aşıcıoğlu *Türkiye*
16:50 – 17:00	**Unveiling Forensic Clues: Exploring Cosmetic Trace Evidence Through Raman Spectroscopy** Didem Çilengiroğlu, Yıldıray Topçu *Türkiye*
17:00 – 17:10	**Find Me The First International Forensic App For Smartphones And Tabletts: A Free Opportunity for Documentation of International Standards in Single Cases and Disaster Victim Identification** Sven Benthaus *Germany*
17:10 – 17:20	**Development of a Biosensor with Green Synthesis for the Detection of Latent Fingerprints Obtained From Crime Scene** Alihan Kocabaş, Süreyya Dede , Sevil Atasoy, Emine Karakuş *Türkiye*
17:20 – 17:30	***Q&A***
17:30–19:00	**WELCOME RECEPTION** **&** **ART EXHIBITION**

Saturday, October 7, 2023
Venue: Sismanoglio Megaro - Taksim

10:00 – 11:30	**FORENSIC PSYCHIATRY & BEHAVIOURAL SCIENCES SESSION** **Moderator** **Fatih Yavuz**
10:00 – 10:10	**Evaulating Relationship Betweeen Postpartum Depression and Infanticide from Forensic Psychiatric Perspective** Ezgi Ildırım, Mehmet Doğan, İbrahim Balcıoğlu *Türkiye*
10:10 – 10:20	**Psychological Autopsy and its Impact on Understanding Suicide** Divya Bhushan, Jayanthi Yadav, Arneet Arora, Abhijit Ramdas Rozatkar *India*
10:20 – 10:30	**Physicians' Attitudes Towards Child Abuse and Neglect (CSA) Reporting and Related Factors** Şule Başöngen, Sinem Yıldız İnanıcı, Mehmet Akif İnanıcı *Türkiye*
10:30 – 10:40	**The Face of the Romanian Forensic Psychiatry System Related to the Admission of Patients Under the Conditions of the Criminal Law** Claudia Elena Anghel, Ciprian Băcilă, Mihaela Tănase, Alexandra Bolos, Elena Cristina Nedelcu *Romania*
10:40 – 10:50	**The Blue Horse and the Italian Psychiatric Reform** Călin Scripcaru, Diana Bulgaru Iliescu, Bogdan Chirilă, Gabriela Crăciun, Andrei Scripcaru *Romania*
10:50 – 11:00	**The View Was to Die for: A Thematic Analysis of One Sentence Suicide Notes** Ayşe Ece Atalar, Ezgi Ildırım, Başak Altunbek , Mehmet Doğan *Türkiye*
11:00 – 11:10	**Use of Social Media and Social Media Addiction in Childhood Adolescence: A Survey Study** Şenel Muslu, Birgül Tüzün, Mehmet Şevki Sözen *Türkiye*
11:10 – 11:20	**Cigarette, Alcohol and Cannabis Use in High School Students and Its Relationship with Demographic Variables, Psychological Symptoms and Childhood Abuse** Halil Bahadır Yüce, Sinem Yıldız İnanıcı, Mehmet Akif İnanıcı *Türkiye*

11:20 – 11:30	***Q&A***
11:30 – 11:40	**BREAK**
11:40 – 13:10	**CLINICAL FORENSIC MEDICINE SESSION** **Moderator** **Meriç Karacan**
11:40 – 11:50	**Changes in Forensic Medical Practice for İstanbul Protocol Implementation in Georgia** Beriashvili Rusudan *Georgia*
11:50 – 12:00	**Medicolegal Evaluation of Pregnant Women Victims of Domestic Violence** Emin Biçen,Şeyma Tuğçe Ünaldı, Duygu Güleş , Kağan Gürpınar , Rıza Madazlı *Türkiye*
12:00 – 12:10	**Nuchal Ligament Ossification Fracture: A Case Report** Mehmet Sunay Yavuz, Volkan Zeybek, Gökmen Karabağ, Şilan Sıngın, Fatih Turan, Aslı Karabulut *Türkiye*
12:10 – 12:20	**Medicolegal Aspects of Hair Restoration Surgery** Emine Gül Taş, Hızır Aslıyüksek, Kağan Gürpınar, Oğuz Çetinkale, Mehmet Akif İnanıcı *Türkiye*
12:20 – 12:30	**Evaluation of Forensic Medical Aspects of Medical Interventions and Damages Caused by Unauthorized Persons** Talip Vural, Melike Erbaş, İbrahim Baysal, Yasemin Balcı *Türkiye*
12:30 – 12:40	**A Medicolegal Approach to the Blunt Abdominal Traumas** Melike Erbaş, Talip Vural, Yasemin Balcı, Kubilay Kınoğlu, Kağan Gürpınar *Türkiye*
12:40 – 12:50	**Neuroradiologic Malpractice Claims** Sibel Çağlar Atacan, Ajda Ağırbaş, Kağan Gürpınar *Türkiye*

12:50 – 13:00	**Secondary Victimization and The Importance of Trauma–Informed Care During Forensic Investigation of Victims of Sexual Violence** Gabriela Crăciun, Silvia Șpac, Diana Gavril, Bianca Hanganu, Beatrice Ioan *Romania*
13:00 – 13:10	***Q&A***
13:10 – 14:10	**Lunch Break**
14:10 – 14:30	**KEYNOTE** **Aristidis Tsatsakis** Director of the Department of Toxicology and Forensic Sciences of the Medical School at the University of Crete and the University Hospital of Heraklion
14:30 – 15:40	**FORENSIC PATHOLOGY SESSION III** **Moderator** **Yanko Kolev**
14:30 – 14:40	**Dying at The Gate of Europe – Migrant Deaths in Croatia** Anita Galić Mihić, Marija Baković, Vedrana Petrovečki, Dora Tomčić *Croatia*
14:40 – 14:50	***Self–Harm, A Forensic Construct*** Elmas Shaqiri, Arben Lloja, Gentian Vyshka *Albania*
14:50 – 15:00	**Autopsy–Based Comparative Study of Gross and Histopathology of Antemortem and Postmortem Bone Fracture Surfaces** Moirangthem Sangita, Arneet Arora, Raghvendra Kumar Vidua, Garima Goel *India*
15:00 – 15:10	**Superimposed Neck Injuries in a Complex Unplanned Suicide** Aleksa Leković , Slobodan Nikolić *Serbia*
15:10 – 15:20	**Challenges in Identification of the Deceased** Akhilesh Pathak *India*
15:20 – 15:30	**Possibilities of The Application of Polarization Microscopy for Determining the Time Frame of the Formation of Body Damage on the Human Body** Oleh Vanchuliak, Viktor Bachynskyi, Yuliia Sarkisova, Oleksandr Pavliukovych *Ukraine*
15:30 – 15:40	***Q&A***
15:40 – 15:50	**BREAK**

15:50 – 16:10	**KEYNOTE** **Duarte Nuno Vieira** Professor of Forensic Medicine and Forensic Sciences and of Ethics and Medical Law, Faculty of Medicine of the University of Coimbra (Portugal) and at the Faculty of Health Sciences of the University of Beira Interior
16:10 – 17:20	**FORENSIC PATHOLOGY SESSION IV** **Moderator** **Bablinder Chopra**
16:10 – 16:20	**Social Media Facilitated Sexual Violence** Hakan Kar, Şüheda Bayrakçı, Burak Bulut *Türkiye*
16:20 – 16:30	**Compilation of Different 3D Scanning and Visualisation Methods for Reconstruction of Trauma Mechanism** Yanko Kolev *Bulgaria*
16:30 – 16:40	**Who killed whom? A case report on death due to choking** Rishabh Kumar Chandela *India*
16:40 – 16:50	**Examination of the Crime Scene Necessity of the Forensic Medical Examination of the Crime Scene** Naim Uka *Kosovo*
16:50 – 17:00	**Spectral Selective Autofloresence Microscopy of the Vitreous Body as a Reliable Method for Determining The Time Since Death** Yuliia Sarkisova, Viktor Bachynskyi, Oleh Vanchuliak *Ukraine*
17:00 – 17:10	**Treacherous comfort: A rare case report** Yashasvee Sharma *India*
17:10 - 17:20	***Q&A***
17:20 – 17:30	**BREAK**
17:30 – 18:30	**General Assembly of Balkan Academy of Forensic Sciences**

Sunday, October 8, 2023
Venue: Sismanoglio Megaro - Taksim

09:30 – 09:50	**KEYNOTE** **Roger Byard** Chair of Pathology at The University of Adelaide and Senior Specialist Forensic Pathologist at Forensic Science SA in Adelaide, Australia
09:50 – 12:10	**GENERAL SESSION** **Moderator** Versha Singh
09:50–10:00	**E–Signatures in Forensic Document Examination** Aylin Yalçın Sarıbey, Ayşenur Büyükkaymaz *Türkiye*
10:00 – 10:10	**CANCELED** **Can We Agree on the Terminology Beyond Handwriting?** Anthony A. Milone, Erich J. Seckin *U.S.A.*
10:10 – 10:20	**Evaluation of Individiual Writing Characteristics in Terms of Teaching Profession** Rabia Simsar, Zekai Genç, Alihan Kocabaş, Sevil Atasoy *Türkiye*
10:20 – 10:30	**Massive Taking of Comparative Material for Identification of Perpetrators. Legal, Forensic Science and Society Issues** Wilk Dariusz *Poland*
10:30 – 10:40	**CANCELED** **The Death Penalty in Romania – Historical Course** Bogdan Chirila, Gabriela Craciun, Silvia Spac, Anton Knieling, Andrei Scripcaru *Romania*
10:40 – 10:50	**CANCELED** **EU as a Global Security Actor** Amell Bashoviq *Republic of North Macedonia*
10:50 – 11:00	**Bridging the Gap: Forensics Social Work Education** Aslı Ofluoğlu, Sotirios Kalfoglou *Türkiye*
11:00 – 11:10	**Online Open Book Examination as a Tool For Revision in Forensic Medicine** Pragnesh Parmar, Divya Reddy, Yadukul S, Prashanth Mada *India*

11:10 – 11:20	**Defensive Medicine – A Dreaded Consequence of Malpractice Claims in Romania** Beatrice Gabriela Ioan, Gabriela Crăciun, Bianca Hanganu *Romania*
11:20 – 11:30	**Discourse in Nationalist–Separatist Terrorism in the Context of Moral Exclusion and Faces of Legitimation Theories: The Sample of PKK** Özge Genç Sütlü *Türkiye*
11:30 – 11:40	**Inside the ICU: Understanding Nurses' Attitudes and Factors Impacting Medical Errors** *Muzaffer Berna Doğan*, Ayda Kebapçı *Türkiye*
11:40 – 11:50	**The Extrajudicial Procedure for Resolving Malpractice Complaints: A Valid Alternative in Romania?** Bianca Hanganu, Oana Isaila, Cristian Paparau, Beatrice Gabriela Ioan *Romania*
11:50 – 12:00	**The Importance of Dye and Pigment Analysis in Detection of Artwork Forgery** Dilek Salkım, Eda Kiriş, Nazlı Hölümen, Ömer Karataş, Hülya Yükseloğlu *Türkiye*
12:00 – 12:10	***Q&A***
12:10 – 13:10	**Lunch Break**
13:10 – 13:30	**Closing Ceremony**

Workshops

These workshops are exclusively for **face-to-face participants**

CLINICAL FORENSIC MEDICINE

07 October 2023
10:30 – 11:30

Forensic Odontology / Anthropology & Mass Disaster

Sven Benthaus

07 October 2023
11:30 – 12:30

CSI with Dead Body and Biological Evidence - a Modern Approach to Old Problems

Yanko Kolev

POSTERS

Poster exhibitions are open for viewing at any time on our website

CLINICAL FORENSIC MEDICINE

P–01
A Forensic Perspective on the Fatal Violence Against Women

Monica Moraru

Romania

P–02
Injury Pattern in Intimate Partner Sexual Violence

Biliana Mileva, Mihaela Georgieva, Beatriz Brilhante, Martina Valcheva, Alexandar Alexandrov, Ivan Tsranchev, Vesela Ivanova, Metodi Goshev

Bulgaria

P–03
Evaluation of Traumatic Injuries Suffered as a Result of Road Accidents in Romania Through the Insurance Medicine Evaluation Report

Carmen–Corina Radu, Dan Perju–Dumbravă, Andrei–Vlad Mate

Romania

CANCELED

P–04
Main Characteristics Special Features and Necessary Medical Conditions for The Determination of Permanent Disfigurement of The Face

Albert Kreci, Anisa Kreci

Albania

P–05
Vertebra Fractures as a Road Traffic Injury

Uğur Kayhan, Mahmut Şerif Yıldırım, Betül Pekşen Koç

Türkiye

P–06
Familicide–Double Suicide: Case Presentation

Madalina Maria Diac, Nona Girlescu, Andrei Scripcaru, Anton Knieling, Simona Irina Damian, Diana Bulgaru Iliescu

Romania

P–07
Case Of Road Traffic Accident and Death Due to Medical Malpractice

Rossen Hadjiev, Margarita Tankova, Georgi Gergov

Bulgaria

CRIMINALISTICS
P–08 **Evaluation of Different Brands and Different Colours of Nail Polishes in Terms of Forensic Sciences** Aslı Usta, Özlem Şimşek *Türkiye*
P–09 **The Importance of Forensic Textile Evidence in Forensic Science** Aylin Yalçın Sarıbey, Ayşe Öykü Tuncay *Türkiye*
P–10 **FTIR Spectroscopy Applications in Forensic Sciences** Nurdan Sandıkçı, Alihan Kocabaş, Umut Kendüz, Tuğba Ünsal Sapan, Sevil Atasoy *Türkiye*
P–11 **Errors in Criminalistics: The Possible Application of Sydney Declaration's Principles in The Italian Context** Christian Pallante *Italy*
FORENSIC GENETICS
P–12 **Introducing a Biological Marker into Forensic Medical Practice as a Supplement to Macroscopic and Microscopic Examination of Organs When Determining the Cause of Death by Drowning** Emina Dervišević, Aida Bešić, Ermin Mašić, Muamer Dervišević , Adis Salihbegović, Zurifa Ajanović, Lejla Dervišević, Nermin Sarajlić *Bosnia and Herzegovina*
P–13 **Evaluating the Use of Rapid DNA Technology in Kinship Analysis** Tuğba Ünsal Sapan, Nasibe Yağmur Kartal, Sevil Atasoy *Türkiye*
P–14 **DNA Extraction from Blood Samples Exposed to Constant Concentrations of Hydrochloric Acid and Sodium Hydroxide Solutions** Ali Zikir Duman, Tuğba Ünsal Sapan, Sevil Atasoy *Türkiye*
P–15 **DNA Recovery from Blood and Seminal Fluid Samples Exposed to Diluted Sodium Hypochlorite (Bleach)** Engin Damla Gök, Tuğba Ünsal Sapan, Sevil Atasoy *Türkiye*

P–16
Advancing Forensic DNA Analysis: Externally Visible Traits as Phenotypic Markers

Gönül Filoğlu Tüfek, Cemaleddin Arslan, Özlem Bülbül Ercan

Türkiye

P–17
Analytical Approaches to Examining PSA (Prostate Specific Antigen) Concentration in Semen Samples

Mustafa İregür, Belgin İZGİ

Türkiye

P–18
DNA Recovery from Different Blood-Stained Fabrics Discarded in a Lake

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FORENSIC PATHOLOGY SESSION I

- 01 -

USING THE METHOD OF MUELLER-MATRIX POLARIZATION TOMOGRAPHY OF HISTOLOGICAL SECTIONS OF STRUCTURED BIOLOGICAL TISSUES TO DETERMINE THE DEGREE OF BLOOD LOSS

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Background and aims: Acute blood loss often causes the death of the victim, and often occurs in the field of practical activity of a forensic medical expert. All pathomorphological changes in the organs in case of blood loss are characterized by their non-specificity and change in different variations, without providing comprehensive answers to the questions posed by the investigators to the expert. Reliable information about the amount of blood loss in a corpse plays an important role in the investigation of criminal cases for all participants in the legal process. This data helps to make informed decisions based on scientific information. In order to solve this problem, we proposed the use of the method of Mueller-matrix polarization tomography, which is successfully implemented for the analysis of the microstructure of biological tissues.

Methods: Tissues with a fibrillar morphological structure (rectus abdominis muscle, skin) were collected from 120 cadavers with varying degrees of blood loss from 0 mm^3 to 3000 mm^3. The research was carried out by using the method of Mueller-matrix polarization tomography of histological sections of biological tissues.

Results: The effectiveness of the method of multiparametric Muller-matrix differential tomography with algorithmic reproduction of circular birefringence of the distributions of the polycrystalline component of histological sections of biological tissues of the dead with different degrees of blood loss has been established. The sensitivity range $\Delta V = 0 \div 1500$ mm^3 was determined.

Discussion - Conclusions: The obtained results indicate the effectiveness of the proposed technique. However, it is relevant to use other, more flexible polarimetric methods that will allow direct detection of optically anisotropic absorption and linear and circular dichroism.

Keywords: Forensic Medicine, Blood Loss, Mueller's Matrix, Biological Tissues, Polarimetry

- 02 -

CONVENTIONAL VS VIRTUAL AUTOPSY: A PRELIMINARY REPORT

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Introduction: Autopsy is scientific/systematic examination of body after death and a complete virtual autopsy is done using CT, MRI, Surface scanner, MR spectroscope, PM Angiography and 3D reconstruction software which help to create a virtual 3D model of the body used for examination. NEIGRIHMS Shillong has taken up the study to find out the degree of agreement between the two methods.

Materials And Methods: A total of 87 cases were included in the comparative study and for the preliminary review 25 cases were taken up with ethical approval. Universal sampling method was used, and each case was subjected to both conventional and virtual autopsy by performing the CT scan initially and then conventional autopsy was performed. Blinding protocols were followed, and each finding was recorded separately in the respective proformas and the appropriate statistical analysis were done.

Results: Of the 25 cases selected for the study, 23(92%) were males and 2(8%) were females. 8(32%) cases were due to natural death, 2(8%) cases were accidental, 8(32%) cases were homicidal, 1(4%) case was suicidal and in remaining 6(24%) cases manner could not be opined. Among the 25 cases, 18(72%) cases were in fresh condition and remaining 7(28%) cases were in a decomposed state. Among the findings, musculoskeletal is identified by both conventional and virtual autopsy whereas soft tissue injuries were appreciated better in conventional autopsy. Virtual autopsy holds advantage in microcalcifications in tissues/organs.

Discussion - Conclusion: The study has shown that virtual autopsy with CT alone cannot entirely replace conventional autopsy rather than it can be used as an adjuvant to improve the quality of autopsies being done in the country. With all the modalities of virtual autopsy, virtual autopsy might be employed as a gold standard technique as it includes MRI as well which can detect soft tissue pathologies also.

Keywords: Autopsy, Forensic Radiology, Virtual Autopsy, 3D Reconstruction

- 03 -

GFAP AS A VALID POST-MORTEM MARKER IN TRAUMATIC BRAIN INJURY DEATHS

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Background and aims: The role of brain injury in cause of death is of utmost importance for forensic pathologist. Brain trauma causes glial, neuronal, and axonal damage with biomarkers extrusion. Glial fibrillary acidic protein (GFAP) has shown to be a biomarker able to discriminate traumatic brain death from death without trauma. This study' s aim was to evaluate the difference between post-mortem blood GFAP in two groups: traumatic brain death and sudden cardiac death.

Methods: The study analyzed 76 blood samples taken during autopsies. In the case group (n=30), a macroscopic brain damage was documented; main cause of death of the control group was myocardial infarct (n=46). Twenty-two female and 54 male (range 23-88 yrs.) were included with a postmortem interval range 35 - 120 hrs. Samples were stored at -80°C, until the analysis. Blood was studied using automated ELISA test.

Results: In traumatic brain death, GFAP concentration was in the range 0.00-26.03 ng/mL; median of 14.91 and interquartile 3.30-22.31. In the control group, GFAP concentration was 0.00-30.68 ng/mL with a median of 1.79 and interquartile 0.40-4.66. The difference between the medians of the two groups was significant. In relation to the entire population, the area under the ROC curve (AUC) was 0.73, with a 95% confidence interval between 0.62-0.83 and a p=0.0001. The best cut-off to discriminate the two groups was 3.31 ng/mL with sensitivity of 75% and a specificity of 75% performance to discriminate among the two cases of death. Afterwards, the impact of the test on the performances in relation to time interval (death-samplings) was studied. When sample was collected 72 hrs. after the subject's death, test performance improved. The ROC curve provides an AUC of 0.82, with a 95% confidence interval between 0.67-0.92 and a p<0.0001. The test performance worsened when more than 72 hrs. elapse from death to sampling time. The AUC drops to 0.65, with a confidence interval between 0.46-0.80 and a p=0.1311.

Discussion - Conclusions: GFAP quantification is an interesting tool for forensic pathologist regarding the role of TBI in the determination of death, especially when multiple injuries have occurred. The analyses will be more suitable if blood sampling is performed within 72 hrs. from time of death.

Keywords: Forensic Pathology, Biochemistry, Traumatic Brain Injury, GFAP, Biological Marker

- 04 -

GUNSHOT WOUNDS AND MATHEMATICAL MODELS, AN EXPERIMENTAL STUDY

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Backgrounds and aims: The aim of the study is to determine the type of the firearm by chemical analysis of inorganic gunshot residue from experimental gunshot wounds on pig skin. In 60 samples, the skin of one pig was shot with rifle bullets fired from four different types of weapons and at three different distances (contact wound and near-contact wound from 5 cm and 10 cm). The entry wound was characterized in terms of length, width, and depth. Atomic Absorption Spectrophotometry (AAS) was performed on each sample cut into 3x3x3 cm. This was for the determination of the presence of inorganic materials: antimony, barium, lead, nickel, zinc, and copper in the skin and subcutaneous tissue. The weapons in use during the experiments were M70AB2 machine gun and 3 pistols.

Results: The analysis showed that the differences in the distribution of the elements according to the type of weapon at the same shooting distance were predominantly statistically significant (in 88.89% of the cases), which was further analyzed using the statistical discrimination function. Formula for determination of weapon type was provided cut-off points for different distances, with 58.9% of original grouped cases being correctly classified, which was slightly less reliable compared to weapon type discrimination analysis.

Conclusion: The present study has shown that chemical analysis of the GSR in the entry wound with AAS could be useful in the determination of the type of weapon as well as the shooting distance, i.e., in our study, the determination of whether the wound was contact or near-contact. This could be particularly useful in post-mortem decomposed or charred bodies with gunshot wounds. The above-mentioned analysis showed that the formulas used to determine the type of weapon were accurate in almost 80 per cent of the cases.

Keywords: Near Contact Wound, Experimental Study, Gunshot Residue, AAS (Atomic Absorption Spectrophotometry)

- 05 -

DURAL SINUS THROMBOSIS IN THE EVOLUTION OF PELVIS AND LIMBS FRACTURES: A CASE REPORT

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Background: Dural sinus thrombosis is difficult to diagnose and is rare in medical practice, with varying clinical manifestations depending on the aetiological substrate. It has been associated with coagulation disorders, hormonal changes and acute or chronic systemic conditions. An impediment to diagnosis may also be the limited availability of timely and optimal imaging investigation. The purpose of this presentation is to reveal a case of dural sinus thrombosis occurring on post a pelvis and limbs fracture status with thigh amputation.

Case description: We present the case of a 19-year-old person, without pathological antecedents, victim of a traffic accident, with "Fracture of the left lower pubic ramus with displacement. Fracture of the right hemisacrum. Comminuted fracture of the left femur with large displacement. Left patella fracture. Fracture of the 1/3 medial diaphysis of both bones of the left calf with displacement" . He develops lower limb compartment syndrome and 2 days after the traumatic injury, the thigh was amputated. At about 10 days postoperatively he deteriorated neurologically, with CT scan showing diffuse cerebral oedema and was transferred to another health unit where a cranial decompressive bone flap was performed; the patient died 3 days postoperatively. At autopsy were found: amputation of the left thigh, dural sinus thrombosis, cerebral oedema and cerebral laceration. Bacteriological examination of the blood sample showed the presence of Acinetobacter spp.

Discussion: Dural sinus thrombosis, although rarely targeted in medical practice, can have dire consequences and multiple etiologies. In the present case it was favoured by multiple bone fractures and the consequent septic state.

Keywords: Dural Sinus Thrombosis, Fracture, Sepsis

FORENSIC PATHOLOGY SESSION II

- 06 -

ACUTE NECROTIZING ESOPHAGUS (BLACK ESOPHAGUS) FOLLOWING SUICIDAL INGESTION OF SODIUM NITRITE

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Background and aims: The presentation of a rare case of suicide of a 26-year-old man, involving the intake of sodium nitrite. Implementation and investigation of forensic and autopsy findings and their correlation with the presence of acute necrosis of the esophagus – known as black esophagus. The first case of black esophagus following sodium nitrite ingestion ever reported.

Methods: This is a case report. We present the autopsy findings, and discuss relevant literature.

Results: The autopsy findings of the case, which is the first case ever described of acute necrotizing esophagus attributed to the massive ingestion of sodium nitrite.

Discussion - Conclusions: Suicide by sodium nitrite is a particularly rare practice. In recent years, there has been an increasing trend in these types of suicides, due to the dissemination of "alternative" methods via the internet.

Our case involves a 26-year-old male, with a psychiatric medical history and a history of previous suicide attempts.

The forensic investigation includes a wide range of findings that confirm suicide by ingestion of sodium nitrite. These include the lack of evidence of criminal activity, the former statement of suicidal intention by ingesting sodium nitrite, the presence of containers with a yellowish substance near the deceased, the presence of a suicide note, multiple no-resuscitation signs (bracelets and necklaces), the exit of yellowish fluid from the nasal and oral cavity (consistent with the prepared mixture) and last but not least, the chemical analysis of the substance which confirmed its identity.

The findings of the autopsy are of particular interest. These include suffocating phenomena (Tardieu spots etc.), cerebral and pulmonary edema, myocardial ischemia, and the presence of the yellowish mixture in the cavities of the gastrointestinal tract.

Of particular importance, is the existence of acute necrosis of the esophagus. A clinical entity also known as black esophagus, which is analyzed and discussed in our presentation along with the relevant, available literature.

It is important to point out that this is the first report of acute necrosis of the esophagus following intoxication by sodium nitrite ingestion.

Keywords: Forensic Pathology, Forensic Medicine, Forensic Sciences, Black Esophagus, Sodium Nitrite

- 07 -

DEATH BY ACCIDENTAL INTRAVENOUS ADMINISTRATION OF GASOLINE

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Bakcground: Gasoline, also known as gas, petrol and benzin, is primarily used as motor fuel in combustion engines. In health care institutions, medical gasoline is used for cleaning the skin and oily surfaces. It is a colorless liquid, purified of Sulphur and lead. Most of the gasoline intoxications are self-inflicted poisoning with the intention of committing suicide, while children may ingest accidentally.

Case description: This case presents a fatal accidental intravenous injection of gasoline in 62 years old male who was admitted to dialysis center for his regular hemodialysis. Previously he was in contact with SARS-CoV-2 positive patient, so the hemodialysis was performed in isolated room. At the end of the procedure, the nurse, who was wearing all necessary personal protective equipment (PPE), applied medical gasoline intravenous, instead of 0,9% sodium chloride, in order to clean the dialysis catheter. Soon after, he became cyanotic and sweaty, with cold extremities. Despite immediate reaction of the medical stuff and intensive care, he died at the same day, seven hours after the administration of gasoline.

Discussion - Conclusion: Poisoning by intravenous gasoline application is rare and it is mostly due to suicidal attempt. To our knowledge, this is the only case when the intravenous gasoline application was unintentional, from medical personnel. Medication errors happen mostly in conditions when the medical staff is under increased stress and in a dynamic environment, such was during the time of the COVID-19 pandemic.

Keywords: Forensic Medicine, Poisonings, Benzin

- 08 -

AN INTERESTING CASE OF SELF-INDUCED STARVATION – A CASE REPORT

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Background and aims: In this day and age, it is rare to encounter starvation as a cause of death in developed countries. In this setting, it is usually a result of a mental disease or a consequence of some disease that interferes with food consumption. Here we present a case of starvation with an unexpected underlying cause.

Methods: A 64-year-old woman was found dead in her apartment. Examination of the body revealed a seriously undernourished woman. No medical records or particular medication were found that would explain the state of her nourishment. The sister of the deceased disclosed that she was not fond of doctors and had not gone to one in years. At the autopsy, she presented with classic features of starvation. No apparent cause was found at the autopsy. The only thing that was observed were external hemorrhoids.

Results: Since no reason for cachexia was found, additional investigations were performed, and follow-up interviews with the husband and son were conducted. It was brought to light that she suffered from hemorrhoids and felt very uncomfortable about it, but did not seek medical attention. Because of the physical and psychological discomfort, she began eating less and less. In the months leading to her death, she was left to her own devices since her husband was undergoing physical therapy for a heart condition in an out-of-town facility and her son was working in the opposite part of the country. Since both were absent they could not regulate and influence her food intake.

Discussion - Conclusions: In cases where the cause of death is easily detected but the underlying cause of such state is not readily apparent enhanced effort should be applied to uncover all the facts that led to the demise.

Keywords: Starvation, Hemorrhoids, Cause of Death, Autopsy, Forensic Medicine

- 09 -

EXPLORING THE CONTROVERSY SURROUNDING THE RECOGNITION OF SHAKEN BABY SYNDROME AS A CAUSE OF DEATH

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Background and aims: Shaken baby syndrome (SBS) is a prime cause of preventable infant neurological injury or mortality generated by child abuse. Historically, it held a recognised standing in prosecutorial arguments; however, more recently, it is a topic of dispute. Professionals have moved towards using the phrases 'abusive head trauma' or 'non-accidental head injury (NAHI)'. This study aims to investigate whether it was premature to remove SBS as a recognised cause of death in court or if it was correct to question the validity of this diagnosis.

Methods: Qualitative and quantitative data analysis occurred through peer-reviewed databases, including Google Scholar and PubMed. To maintain relevancy, the years searched were from 2000 to 2023. The reference list of each article was also meticulously searched for supplementary resources. Non-English sources were excluded.

Results: Clinically, a triad of injuries (encephalopathy, subdural haemorrhage and retinal haemorrhages) define SBS. In court, establishing the presence of the triad is insufficient to sustain a criminal charge. The 'unified hypothesis', a prominent counterargument, posits that the haemorrhages are not directly caused by shaking but rather stem from hypoxic processes. Another issue is the limited evidence supporting the role of axonal damage in SBS. Medical literature also argues about the accuracy of retinal haemorrhages as an indicator of SBS, since it has many differentials. Some researchers also propose that a fall or heavy impact is necessary for the triad of injuries, not just the trauma created by shaking a baby.

Discussion - Conclusions: Although it is evident that SBS produces a logical triad of clinical findings, this triad is only highly pathognomonic; it is not diagnostic. 'Abusive head trauma' or 'NAHI' accounts for the numerous methods of child abuse that can cause traumatic head injuries and, therefore, is the more appropriate terminology for the cause of death.

Keywords: Forensic Pathology, Shaken Baby Syndrome, Child Abuse, Non-Accidental Head Injury, Abusive Head Trauma

MEDICAL MALPRACTICE IN MALE CIRCUMCISION OPERATIONS

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Circumcision is the cutting off the genital foreskin (prepuce), commonly performed on males and occasionally on females. The data that we present is only on male circumcision and hereafter it is called 'circumcision'.

Circumcision is a simple surgery, nevertheless many complications such as infection, bleeding, glans incision, skin necrosis, urethral fistula, excessive or insufficient cutting of prepuce glans hyper-algesia, urinary retention, sepsis, acute obstructive uropathy, necrotizing fasciitis and penile necrosis are possible to occur. The aim of this study is to understand the risk of permanent disability caused by circumcision operations even when performed by trained medical doctors.
The digital data base of Istanbul Medical Chamber has been searched by the code for medical malpractice claims between the years of 2009 to 2014 and 2331 claims have been found. The content of 2331 claims have been evaluated and 33 of them found to be about circumcision operations.

Our findings show us that at least 33 children suffered by circumcision complications and 6 of them had permanent disability including a case of paraplegia.

Keywords: Circumcision, Malpractice, Istanbul Medical Chamber

FORENSIC GENETICS

- 10 -

EVALUATION OF HUMDNA TYPING (YANHUANG-PCR) KIT FOR USABILITY AND RELIABILITY IN FORENSIC SCIENCES AND COMPARISON WITH TWO DIFFERENT PCR KITS (IDENTIFILER PLUS & GLOBALFILER)

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Background and aims: Forensic genetics have a great place within the scope of forensic sciences. Short Tandem Repeat (STR) analyzes are the most frequently conducted forensic genetic analyzes and are used in many different situations such as kinship determinations, parenting tests, comparison of evidence obtained from the crime scene and/or suspects, or identification of individuals. By using polymerase chain reaction (PCR), STR regions are amplified for analysis. For PCR step, commercial kits are used mostly for this purpose. For the aim of this study, the usability of the HUMDNA Typing Yanhuang PCR Kit in the field of forensic sciences was evaluated and compared with other two commercial kits (Identifiler Plus & Globalfiler).
Methods: After ethical approval, saliva samples were collected by sterile swabs and then DNA isolation was performed. Later, in the PCR step, samples were amplified by three kits separately. In addition to this comparison, three different size standards were tested in the electrophoresis of samples amplified using the HUMDNA Typing Yanhuang PCR Kit. Lastly, PCR mixtures at different ratios (1, 1/2.5, 1/5) were prepared and tested in order to see how useful the HUMDNA kit is in eliminating the problems of insufficient sample.
Results: For size standards, cleaner results were obtained with LIZ600. Successful results were obtained in every PCR mix ratio (1, 1/2.5, 1/5), and it was seen that results could be obtained even with a very small amount of DNA.
Discussion - Conclusions: When compared with Identifiler Plus & Globalfiler kits, HUMDNA kit gave the opportunity to examine more STR regions. It has been seen that it can be used in cases where insufficient amount of samples are encountered in forensic genetic studies. In conclusion, HUMDNA Typing Yanhuang PCR Kit is thought to be a useful kit for genetic studies carried out within forensic sciences.

Keywords: Yanhuang PCR Kit, HumDNA Typing Kit, Short Tandem Repeats (STRs), Forensic Sciences, Forensic Genetics

- 11 -

IMPORTANCE OF QUALITY CONTROL IN SAMPLE PREPARATION WORKFLOW OF FORENSIC DEGRADED SAMPLES FOR MASSIVELY PARALLEL SEQUENCING (MPS) USING ION TORRENT GENESTUDIO™ S5 PLATFORM

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Background and aims: Molecular genetics analyzes occupy a significant part of laboratory tests in forensic practice. Pre-prepared commercial kits used for DNA extraction are an excellent choice for samples provided by living people, but in forensic practice, most of the samples that undergo molecular processing are often degraded and may pose a challenge in the laboratory. A special challenge is to provide quality genetic material from post-mortem samples that would be suitable for further analysis with massively parallel sequencing. The aim of this paper is to evaluate the applicability of two silica-based DNA extraction methods for post-mortem blood samples with varying storage time and degrees of degradation, and also, to establish proper quality control in sample preparation workflow for Massively Parallel Sequencing using Ion Torrent GeneStudio™ S5 platform.

Methods: The study was performed on 48 blood samples with different storage time. Silica-based DNA extraction protocols was applied and quantification was made using Qubit 3.0 fluorimeter, followed by Real-Time PCR quantification.

Results: The results indicate high variability between the obtained DNA quantities from post-mortem blood samples with different storage time. Correlation was determined between storage time and sample quantity and quality. The Qiagen Mini Kit & Micro Kit are applicable for DNA extraction from blood samples with various storage periods and degradation levels, which can be used for further NGS analyses after careful quality control and optimization of library preparation conditions.

Discussion – Conclusions: Qubit measurement is recommended for assessment of DNA concentration by library preparation kit' s manuals, however our study showed that total DNA measured by Qubit should be taken with caution, and when possible, real-time PCR quantification should be performed in order to establish the total amplifiable DNA in the sample.

Keywords: Post-Mortem DNA Samples, MPS Quality Control, Ion S5 ™ Next-Generation Sequencing System

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COMPARING FORENSIC SCIENCE PROCEDURES: PHYSICAL ASSESSMENT, SAMPLE COLLECTION AND GENETIC TESTING IN TURKEY AND EUROPEAN COUNTRIES

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Background and Aim: Criminal Procedure refers to the process that starts with suspicion of a committed crime and continues until a verdict is reached. It's understood that evidence can persist on the body after a crime is committed; therefore, the obligation to provide evidence to the accused has been integrated into our legal system. The Turkish Criminal Procedure Code, numbered 5271, along with the relevant implementation regulations, outlines the procedures for physical body examinations, sample collection, and genetic testing. This research aims to identify the parallels and distinctions in terms of legal regulations and practices in comparison to European countries. The ultimate goal is to provide insights into how our system can be enhanced for better alignment with European practices.

Methods: We analyzed legal regulations in Turkey and ten European countries, comparing the procedures related to physical body assessments, sample collection, and genetic testing.

Results: Unlike our country's regulations regarding the decision-making process, the German Code of Criminal Procedure authorizes both the police and the prosecutor in cases of delays. In Spain, blood collection is mandated to be carried out by the police according to legislation. While most countries utilize STR loci for genetic analysis, certain European countries such as the Netherlands, Slovakia, and Austria have regulations pertaining to the study of DNA loci that determine phenotypic characteristics. This study is allowed, to varying extents, in many countries.

Discussion - Conclusions: It is considered that a legal amendment should be made to ensure that the person is informed and written consent is obtained prior to all applications, that the body sampling process is carried out by health personnel, that DNA samples are destroyed, that DNA analysis results are stored and deleted, that the analysis is repeated for confirmation when the sample subject to examination is compatible, that the number of loci studied is increased in order to increase reliability in case of compatibility, or that the analysis is repeated as a result of the addition of more informative loci to the system with the developing technology.

Keywords: Forensic Sciences, Sexual Crimes, Physical Assessment, Sample Collection, Molecular Genetic Analysis

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GENOMIC SURPRIZES: UNREVEALING THE MYSTERY OF NON-MATERNAL FETAL DNA

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Background and aims: Gestational trophoblastic diseases (GTD); it is a group of diseases that are a pregnancy complication resulting from abnormal gametogenesis and have malignant potential. 90% of GTD appear as Mole Hydatidiform. There are two types of Mole Hydatidiform; mole pregnancy may occur by disrupting the entire pregnancy (complete mole), or an embryo is formed and a part of the placenta may turn into a molar pregnancy (incomplete mole). When a molar pregnancy is diagnosed, the pregnancy should be terminated by curettage. The incidence of GTD is very low (2 per 1000 pregnancies). The forensic presentation of these cases is even rarer. In this study, we aimed to examine the approach and evaluation process of complete mole cases encountered in Forensic Genetic Laboratories.

Methods: To find the suspect in sexual assault cases, comparative biologic material (blood, saliva, etc) taken from the victim (that is the mother) and the curettage material is sent to Forensic Genetic Laboratories. One of the isolation methods routinely studied in the laboratory can be used to determine mother and fetus' s Forensic DNA Profiles. Mother' s biological sample and more than one tissue samples selected from the curettage material are analyzed. Deoxyribonucleic acid (DNA) is isolated from these samples with the preferred DNA isolation method. Short Tandem Repeats (STR) gene regions are amplified from the isolated samples using the Polymerase Chain Reaction (PCR) method. In the genetic analyzer device, amplified gene regions are made visible with the appropriate software. Then the results interpreted by the expert.

Results: In a typical fertilization, in each pair one chromosome comes from the mother (23 chromosomes) and one chromosome (23 chromosomes) from the father. In a complete mole hydatidiform pregnancy, one or two sperm fertilize an egg. Chromosomes from the mother are missing or not working. In this case, the father's chromosomes are copied and the chromosomes do not come from the mother (46 XY or 46 XX).

Discussion - Conclusions: Although there is no compatibility between the STR DNA Profile obtained from the curettage material and the STR DNA Profile of the victim showing complete mole hydatidiform in terms of mother-child relationship, this situation does not constitute an obstacle to the comparison with the probable father.

Keywords: Forensic Genetics, Gestational Trophoblastic Diseases, Complete Mole Hydatidiform

FORENSIC NURSING SCIENCE

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A CONTEMPORARY RESPONSE TO HUMANITARIAN AND HUMAN RIGHTS

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"The current world situation is such that a nurse may become involved in innumerable circumstances requiring action on her/his part to safeguard human rights" . As the science of nursing merged with the forensic sciences and criminal justice systems, a distinctive discipline has evolved: Forensic nursing science. This emergent science has evolved in response to the consequences of global human violence. Problematic social, cultural, and political situations corresponding to the escalation of reported violence reinforces the need to define the dynamics, processes, and guidelines for forensic nursing practice. Forensic nursing is an essential discipline that recognizes human violence through a contemporary domain of scientific knowledge, health care, and human rights.

Forensic nursing science is objective and unbiased. It applies equally to either side of civil and criminal law, or other legal matters. Forensic nursing care helps to provide improved health and justice outcomes.

The need for nursing actions to safeguard human rights is not restricted to times of political upheaval, and war. It pertains to the abuse or maltreatment of patients or others whether witnessed or suspected. Forensic nurses are expected to perform examinations on victims and/or suspects before they are subjected to forms of interrogation, which may include torture. To ensure that the nurse is prepared and knowledgeable to provide or prevent the predictable treatment involved meets the standards of International Law (IL) requires competence through a formidable forensic and nursing scientific education including the Istanbul protocol.

Health and justice organizations supporting forensic nursing principles and philosophies on human rights include the American Academy of Forensic Sciences (AAFS), Humanitarian and Human Rights Resource Center (HHRRC), International Council of Nursing (ICN), International Committee of the Red Cross (ICRC), International Association of Forensic Nurses (IAFN), and Amnesty International (AI). Each group encourages all members to engage in humanitarian and human rights applications to advance global health and justice.

Keywords: Unbiased, Truth, Torture

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FORENSIC NURSE HOSPITALIST: THE COMPREHENSIVE ROLE OF THE FORENSIC NURSE IN A HOSPITAL SETTING

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"Forensic Nurse Hospitalist" was first proposed in a 2020 article by forensic nurse scholars, academicians, and expert clinicians, as a new term to describe the role of the nurse who is qualified by licensure and education as a specialist in forensic nursing and practices specifically in the hospital setting. Attendees will learn about this new and unique role that may be currently lacking in their healthcare system. The Forensic Nurse Hospitalist (FNH) Conceptual Model will also be shared which was developed to illustrate the three pillars of influence impacted by the FNH role:
1) patients,
2) healthcare providers, and
3) healthcare systems. Implementing the FNH role has the ability to positively impact health and legal outcomes of patients who have experienced trauma; improve healthcare provider performance when delivering care to patient-victims; and impact healthcare systems by serving as a leader in the development of policy, procedure, education, and consultation when trauma, violence, or maltreatment is involved. It is vital that healthcare systems employ FNHs to deliver expert patient care, offer specialized consultation and collaboration, and implement system-wide initiatives that best meet the needs of patients who have experienced intentional and unintentional trauma.

Keywords: Forensic Nursing, Role Development, Specialty Advancement

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RESPONDING TO INTERPERSONAL VIOLENCE: CHALLENGES, COLLABORATION AND EDUCATION FOR NURSES

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Interpersonal violence represents an urgent public health issue, requiring the collaboration of healthcare professionals across disciplines and beyond. This presentation summarizes findings from a survey conducted among nursing professionals, highlighting their exposure to violence cases, their educational levels in managing such situations, and their interest in further education. The survey was conducted by the Forensic Nursing Interest Group of Swiss Professional Association of Nurses (SBK), responding to the identified need for targeted training opportunities.

Over half of the participants reported multiple encounters with violence-affected individuals in the past six months, indicating the prevalence of the issue. However, 47% expressed uncertainty and lack of knowledge in handling these cases effectively. This highlights the urgency of enhancing professionals' skills and knowledge in addressing interpersonal violence.

The survey further revealed that 93% of respondents expressed a strong need for educational programs focusing on interpersonal violence. The Forensic Nursing Interest Group recognized this demand and aims to provide targeted training programs. This response underlines the importance of the identified gaps in professionals' competence and promoting their capacity to provide optimal care for violence-affected individuals.

Collaboration and networking among different professional organizations play an essential role in preventing and combating interpersonal violence. The importance of inter-organizational collaboration is particularly pointed out in order to improve interdisciplinary approaches, share best practices, and develop comprehensive support systems for persons experiencing violence.

Keywords: Forensic Nursing, Interpersonal Violence, Nursing Professionals, Education and Training, Networking

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FORENSIC NURSING IN PORTUGAL

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Crime and violence bring together the two most powerful systems that affect people's lives around the world (healthcare and justice). The need for policies to address critical issues related to violence and its associated trauma is a multidisciplinary issue involving doctors, nurses, lawyers, judges, sociologists, psychologists, social workers, forensic scientists, politicians and criminal justice professionals. The effective management of forensic cases is an area still lacking in policies and legislation that can guarantee the protection of the patient's legal, civil and human rights.

The concept of the nurse investigator represents one member of an alliance between healthcare providers, police and forensic scientists in a holistic approach to the study and treatment of victims and perpetrators of physical, psychological and sexual violence. Forensic nurses do not compete with or aim to replace other professionals, but rather fill gaps in forensic services, collaborating with all professionals working in this field. Forensic nurses are qualified professionals who combine biomedical knowledge, the basic principles of law and human behavior.

The genesis of a new nursing specialty emerged as a response to criminal violence, which has increased significantly in the 21st century. As a nursing practice, forensic nursing unites the health and law systems with social justice as a common concern. The American Academy of Forensic Sciences was the first to formally recognize the scientific role of the forensic nurse as an essential partner to other forensic specialists in the clinical investigation of trauma involving the living and the dead.

Forensic nursing is multidimensional in its definition, addressing issues related to healthcare and the law. In the clinical area, this role is defined as the "application of clinical and scientific knowledge to questions of law related to the civil and criminal investigation of trauma in survivors of traumatic injuries, patient treatment, and court-related issues" (Lynch, 1995). Forensic nursing is further defined as "the application of the nursing process to public and legal proceedings, the application of forensic aspects to health care in the scientific investigation of trauma and/or death-related issues, as well as issues related to abuse, violence, criminal activity, and traumatic accidents".

As an emerging discipline, forensic nursing takes on a distinctive role in cases that require forensic skills and knowledge. Contemporary forensic nursing has broadened its scope of practice to include trauma investigation in clinical and community institutions as well as legal agencies.

The nurse's training and clinical experience are an asset to forensic investigation, as they have enabled the development of analytical and observational skills. Vision, commitment and perseverance are strengths that form part of the role that forensic nurses play in their work. Collaboration and innovation are two important skills that forensic nurses must possess in order to implement positive change in the health and justice systems. Prevention is one of the main objectives of the forensic nurse, which is similar to the main purpose of traditional medicine and nursing. These qualities help to avoid human tragedies that are unnecessary to advance progress in this area of specialization.

Forensic nursing in Portugal emerged in 2006 when I became the first forensic nurse. Since then, I have been training more forensic nurses, establishing standards and protocols and skills. In 2012, we created a forensic nursing team at INMLCF that today works in several areas, not just interpersonal violence, such as toxicology, genetics, death investigation, pre-hospital and emergency care.

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FORENSIC NURSING SCIENCE: A CRITICAL HISTORY IN KOSOVO

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The science of nursing has merged with the forensic sciences and criminal justice systems to provide a distinctive discipline: Forensic Nursing Science. The evolution of a forensic specialist in nursing science has emerged in response to the needs of a world in crisis. Prior to 1986, there was no formal education for nurses engaged in forensic functions. Although nurses performed various forensic tasks. No forensic education or certificate of competence were required.

In1986, Lynch revolutionizes nursing education as she initiates a formal forensic nursing curriculum at the University of Texas at Arlington, with a focus on the scientific investigation of death - which soon evolves into the concept of a clinical forensic practice in nursing. The formal presentation of forensic nursing in the original scientific paper in 1986 was submitted to the American Academy of Forensic Sciences (Lynch, 1986). However, it was first defined as a scientific discipline in 1991when officially recognized by the American Academy of Forensic Sciences as eligible for membership by the Society's Congress and was followed by the American Nurses Association in the United States of America as a nursing specialty in 1995 (Lynch, 1995). The International Association of Forensic Nurses (IAFN) was formed in 1992 when 74 forensic nurses, the majority of whom were sexual assault nurses, came together in Minneapolis, Minnesota Current IAFN membership holds over 8,500 members in 25 countries worldwide.

After three decades of membership in the American Academy of Forensic Sciences (AAFS), Forensic Nursing is honored to become the Academy's 12th scientific section, identified as the 2022 Section of Forensic Nursing Sciences.

In 2002 in Kosova for the first time in Europe two Forensic Nurse Examiners were trained and introduced to the system. Other advances came with the inclusion of the Forensic Nurse Sexual Assault Nurse Examiner in sexual violence cases. The approach and techniques in examining victims of sexual assault have now been changed. Examination by a panel of doctors, rectal touchier technique, and virginity test has been abandoned

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BUILDING QUALITY METRICS FOR PEDIATRIC FORENSIC NURSING PROGRAMS

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Clinical quality measures are a cornerstone of efforts to improve in all aspects of the forensic sciences as well as care delivery and patient outcomes in all health care settings globally. This session will explore why Quality Metrics are a key issue for pediatric forensic nursing programs, how Quality Metrics improve health, forensic science, and judicial outcomes, and in what way Quality Metrics affect Pediatric Forensic Nurses.

Developing outcome measures that are truly meaningful can be challenging in the field of Pediatric Forensic Nursing. These tools help measure or quantify healthcare processes, outcomes of health and legal domain, pediatric patient perceptions, and organizational structure and/or systems that are associated with the ability to provide high-quality medical forensic health care and/or relate to one or more quality goals for health care. These goals traditionally include: effective, safe, efficient, patient-centered, equitable, and timely care when translated into the medical forensic impact it is inclusive of trauma informed victim centeredness and high reliability. Application of quality metrics to the Pediatric Forensic Nursing Program can yield improved health outcomes, reduce burden and control cost, improve nursing satisfaction, and influence external partner investigative and judicial organizations.

Keywords: Pediatric Forensic Nurse**,** Quality, Forensic Sciences

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EFFECTS OF FORENSIC NURSES PRESENCE IN HEALTH CARE SYSTEM

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Background and aims: Healthcare workers are responsible for assessment, diagnosis, and treatment of patients admitted to hospitals with no expectation to investigate suspects of criminal acts because of its specialty. Forensic nursing integrates the forensic aspects of health care with biological, psychological, social and spiritual education of nursing for scientific studies, trauma care, murder as well as violence investigations, criminal acts and post-traumatic stress disorders. Despite all the benefits of forensic nursing in international community, few activities have been undertaken in Iran for its establishment. This study aimed to describe the consequences of the presence of forensic nurses in the health system.

Methods: This qualitative study was conducted with 18 participant experts in the field of health and law in Iran. The interviews were analyzed using inductive content analysis approach proposed by Graneheim and Lundman.

Results: The consequences of the presence of nurses in the health system were summarized into two categories: positive and negative consequences. The positive consequences consisted of improved performance, better legality of nurses, the calmness of nurses, prevention of patients' rights violations, advancement comparable with developed countries, reduced costs, increased accuracy and speed in dealing with forensic cases, improved performance of Iranian Legal Medicine Organization and increased employment. On the other hand, the negative consequences were role conflict with other involved professionals and nursing shortage. Participants included nurses (with different specialties), nurse lawyers, forensic medicines, forensic midwives, a judge, and a medical lawyer.

Conclusions: The inclusion of forensic nursing educational programs is essential and healthcare authorities should develop targeted plans to disseminate the related topics and issues.

Keywords: Forensic Sciences, Nursing, Health Care

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SLAYING DRAGONS: PREVENTION OF ADOLESCENT HUMAN TRAFFICKING

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Prevention of adolescent Human Trafficking should be universally accessible to individuals and families. The approach to HT prevention must be strong, resilient, and adaptable. A complex set of solutions is necessary for this complex nefarious syndicate. it is imperative to find the right sword for the battle against this dragon. Whether implementing the socio-ecological model, employing comprehensive case managers, or creating a hub for at-risk youth to have a safe space, the biggest factors for success are the following: meeting individuals where they are; connecting them with services and care that they need; building relationships within families and personal networks; utilizing community resources in a way that builds the individual and family as well as encourages the resource to keep in the fight against pervasive exploitation; and to address systemic issues and barriers that keep vulnerable people from living a healthy, resilient life. Forensic nurses should pursue opportunities to improve their communities through education, empowerment and utilizing best practices and trauma informed care, which collectively contribute to improvements to the response to trafficking, locally and globally. FNs are uniquely positioned to be innovators in roles such as community case managers and youth at risk forensic specialists. Fostering these roles will help develop better responses and processes that address the needs of the patients FNs serve. The vastness of the enigma that is human trafficking demands that we continue in our efforts to support and infuse empowerment in those at highest risk, meet the needs for families, build resilient communities, and challenge societal disparities. There is no simple answer, but the work is worth it.

Keywords: Human Trafficking, Adolescent, Forensic Nursing

FORENSIC TOXICOLOGY SESSION

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DRUGGED DRIVING IN BULGARIA: CURRENT TRENDS AND CHALLENGES

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Background and aims: Bulgarian law applies to drugged driving and only prohibited drug detection is required (Zero Tolerance Law). The road test of drivers, suspected of driving after the use of illicit substances, is performed with an immunoassay kit (Dräger DrugTest 5000). Confirmation is done with a blood sample. Drug abuse by drivers is undoubtedly an issue of great public concern. The normative base on the subject is periodically discussed and updated in the country. This work aims to provide information on current trends and assess some challenges in the field.

Methods: Based on our experinece[1] trends in the drug abuse by drivers are derived and some relations are discussed. The problems in the analysis of prohibited drugs are also identified and the challenges of this type of expertise are pointed out.

Results: Tetrahydrocannabinol (45.0%), amphetamine/methamphetamine (10.6%), and cocaine (3.4%) are the most frequently detected drugs in blood samples of drug-driving suspects in Bulgaria. Recently, the polysubstance use is also expanded in the country (33.0%). At the same time, the number of false-positive samples (a different result between a roadside test of oral fluid/saliva and a confirmatory laboratory blood test) is relatively high. Also, in some cases the presence of the drug and/or its metabolite is detected only in the corresponding urine sample (around 20%).

Discussion - Conclusions: Two analytical methods – GC-MS and LC-MS – are legally used in Bulgaria, but in the same time every confirmatory laboratory in the country has own methodology, specialists with different qualification and organization. Therefore, it is necessary to introduce blood drug limits i.e., *Per se* legislation. The role of oral fluid as a sample for confirmatory analysis should be also evaluated. Urine is a very valuable sample when assessing toxicokinetic and answering question about time of drug usage.

Keywords: Zero-Tolerance Law, Drugged Drivers, Illicit Drugs, Drug Driving Testing

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IMPACT OF DIAZEPAM-ALCOHOL COCKTAIL ON THE DEVELOPMENT AND MORPHOMETRICS OF TWO IMPORTANT BLOWFLIES: A FORENSIC ENTOMOTOXICOLOGICAL PERSPECTIVE

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Background and aims: Larval growth and morphometrics have been used in the past to estimate the post-mortem interval (PMI) in various forensic scenarios. This approach has to take a number of factors into consideration which may affect the development and morphometrics, one of them being the ante-mortem presence of toxicants in the body of the deceased which may be passed on to the insects feeding on such a carcass. This study explores the entomotoxicological effects of a diazepam-alcohol blend on the development and morphometrics of two blowflies of forensic importance, *Chrysomya megacephala* and *Chrysomya rufifacies*, which are prevalent in our study region and play a crucial role in post-mortem interval (PMI) estimation.

Methods: The experimental design involved administering varying dosages of diazepam and alcohol to New Zealand white rabbits followed by excising and exposing their liver tissues to the eggs of both blowfly species post-mortem. Multiple regression analysis was employed to discern the impact of drug cocktail of diazepam and alcoholic beverage on larval growth and development.

Results: The findings revealed that the larvae of *C. megacephala* displayed considerable weight disparities when exposed to the drug cocktail as compared to the length disparities. This suggests the influence of the toxic compound on larval growth. Nevertheless, there were significant variations in the length-weight ratio across different dosage groups relative to the control too, indicating an effect on larval development. For *C. rufifacies*, no notable length differences were identified across dosage groups in comparison to the control. However, the level of significance observed was also very low in the average larval weight due to the presence of various dosages of the cocktail.

Discussion - Conclusions: These observations underscore the role of the diazepam-alcohol cocktail in the growth and development of blowfly larvae and the need to consider such effects when estimating post-mortem intervals (PMI) using larval age with respect to the species of the blowflies. This investigation serves as a vital addition to the field of forensic entomology, potentially improving the accuracy of PMI estimation.

Keywords: Chrysomya Megacephala, Chrysomya Rufifacies, Forensic Entomology, Post-Mortem Interval, Larval Development

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IMPLEMENTATIONS OF SUBSTANCE ANALYSIS IN URINE FOR PROBATION CASES: COMPARISON OF RANDOM TEST AND APPOINTMENT TEST

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Background and aims: The probation practice, which is a type of execution in which the measures determined in social life are applied by people who have not made a habit of committing a crime, put into practice in Turkey in 2005. Illegal substance analyses are performed in the probation urine sample and this study was aimed to evaluate the analysis results of the probation cases who came to the appointment and random urine test.

Methods: The forensic toxicological analysis results were retrospectively evaluated between 2018-2022 years (n=3634). While conducting appointment tests in 2018-2021; Random tests were conducted in 2022. In screening analyses, cannabis metabolite THC-COOH, amphetamine, methamphetamine, 3,4-methylenedioxy-N-methylamphetamine, opiate, cocaine, benzodiazepine, buprenorphine and 6-Monoacetylmorphine (6-AM) analyzes were performed by immunoassay technique. The confirmation analyzes were performed by Gas Chromatography Mass Spectrometry for all positive results.

Results: It was found that, 22.2% (n=808) of all cases had positive results according to the parameters examined. 96.5% (n=780) of these cases were male and the mean age was calculated 31.6± 9.8 (range 18-68). It was determined that, the positivity rate of the cases who came with an appointment test was 22.5% (n=615); while 21.3% (n=193) of the cases were positive who were called for the random test (independent sample t-test p=0.018). When the analysis results of all positive cases were examined, it was determined that the use of THC-COOH was the highest rate 65.2% (n=527), followed by the use of binary substance use (the most used binary drugs, respectively; Amphetamine-Methamphetamine, THC-COOH-Amphetamine and THC-COOH-Cocaine) at 13.3% (n=108).

Conclusions: During the probation period, analyzes are made to determine whether the obligor uses substances random urine test at least once a year. It has been determined that there is a decrease in the positivity rate of the people we analyzed in 2022. It is foreseen that this test application, which the person does not know beforehand, will be a more effective probation application by increasing the number of analyzes.

Keywords: Probation, Drug Test, Forensic Toxicology, Substance

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ANALGESIA IN MILITARY-RELATED MASS CASUALTY EVENTS – CURRENT TRENDS AND FUTURE DIRECTIONS IN BATTLEFIELD PAIN MANAGEMENT

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Background and Aim: In combat settings, the analgesia resembles the second most common challenge for the military medical services. Most battlefield analgesia protocols rely on opioids for managing acute pain. Are opioids the best option? The current protocols did not satisfy their predicted efficiency. The use of oral transmucosal fentanyl citrate (OTFC) does not provide the optimal clinical effect that it is desired for mass casualty incidents. The substitution of OTFC with sufentanil provides better therapeutic opportunities in one safer and more efficient manner. Including an adjuvant analgesic, such as cannabinoids or alpha-2 agonist may help reduce the opioid need, and provide better pain control. The aim of our literature review is to analyze the current trends in the used drugs for pain management, their potential battlefield uses, differentiating their positive and negative characteristics for defining the future practical uses in tactical conditions, in order to reduce the opioid demand.

Methods: A scoping review was conducted on PubMed/MEDLINE and Scopus to identify reports published between January 1, 2017 and June 1, relevant to the current analgesia concepts, in pursuit of finding new therapeutically applications of current drugs in order to decrease the opioid demand on the battlefield settings. We followed the PRISMA (Preferred-Reporting-Items-for-Systematic-Reviews-and-Meta-Analyses) extension for scoping review guidelines.

Results: Safer, more potent opioid should replace the current in use OTFC. Although the promising analgesic effects of the cannabinoids and the alfa-2 agonists, they are limited in use of treating acute pain.

Discussion-Conclusion: The replacement of OTFC with sufentanil would increase the quality of the pain management. This would happen due to the better pharmacological profile, safer use and faster administration. Further investigations should be made and more information must be acquired about the cannabinoid analgesics and alfa-2 agonists in order to use them in mass casualty events.

Keywords. Military Medicine, Analgesia, Sufentanil, Canabinoid Analgetics, Opioid Poisoning

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SAFETY EVALUATION OF MAKEUP TOYS: ASSESSMENT OF SELECTED TOXIC ELEMENTS

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Background and aims: Toxic elements are involved in various matrices as impurities and cause adverse effects especially on children even at low concentrations due to their immature detoxifying systems. Makeup toys are one of the most preferred type of toys especially for baby girls, and these products may include trace amounts of toxic elements in order to achieve intended softness, flexibility, or attractive color. The aim of this study was to detect the toxic elements profile of makeup toys, to compare these elements with maximum permissible limits (MPL) set by regulatory agencies, and also, to determine hazard index (HI) of each product.
Methods: A total of 63 toy cosmetics were purchased from Istanbul stores and 8 toxic elements (Cr, Co, Ni, As, Cd, Sb, Hg, and Pb) were analyzed by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS).
Results: The concentration ranges of Cr, Co, Ni, As, Cd, Sb, Hg, and Pb were found between 0.233-12.530, <LOQ-2.884, <LOQ-33.080, <LOQ-27.680, <LOQ -0.812, <LOQ-1.620, <LOQ -4.919, and <LOQ-171.200 µg g^{-1} and the percentages of products that exceeded the MPL values were detected 73.02, 55.56, 77.78, 14.29, 15.87, 19.05, 3.17, and 36.51%, respectively. Moreover, all products exceeded the limit of HI value (<1) as well (n=54, 85.71%), except 9 products.
Discussion - Conclusions: Children are more vulnerable to toxic elements due to inadequate biological systems. In this study, 57 out of 63 products were exceeded MPL for at least one of 8 toxic elements which corresponds to unsafe products for children health in the case of oral and/or dermal exposure. Furthermore, HI values of 54 out of 63 products were found >1, which indicate exposed children could experience potential health problem in the future. The stricter policies should be enforced to protect children from unsafe toys and periodic monitoring should be executed.

Keywords: Toxic Element, Health Risk, Makeup Toys, Children, Safety

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RICIN POISONING – A RARITY IN THE 21ST CENTURY – CASE REPORT

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Background: Ricin is a type II ribosome-inactivating protein. It is classified as a biological weapon due to its severe toxicity – the inhalation lethal dose (LD50) is 3-5 µg/kg while the oral LD50 is 20 mg/kg. One of the most notorious assassinations in Bulgarian history is believed to have been carried out with a ricin bullet – the victim was George Markov, a Bulgarian dissident writer (7 September 1978, London, UK).

Case description: We present a case of a 24-year-old male with a history of eating disorder who was admitted to the Emergency Toxicology Clinic of MMA – Sofia four hours after ingesting four large seeds of Ricinus communis.

Methods: Our study and conclusions are based on the patient workup, observation, and data analysis.

Discussion and Results: The presenting symptoms that were initially recorded were multiple episodes of vomiting and diarrhoea with traces of blood. The patient received a conservative treatment since no antidote exists. A transient elevation of Aspartate Aminotransferase (AST) and slight deviation in haemostasis parameters were observed but no other major abnormalities. The gastrointestinal symptoms resolved on the third day. The patient was discharged on the fifth day of admission without any health complaints. He was referred to a psychiatrist for a follow-up.

Keywords: Ricin, Poisoning, Toxicology

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EFFECTS OF DICLOFENAC SODIUM ON THE DEVELOPMENT OF MUSCA DOMESTICA (DIPTERA: MUSCIDAE) AND ITS FORENSIC RELEVANCE

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Background and Purposes: *Musca domestica* Linnaeus, 1758 (Diptera: Muscidae), also known as the house fly, is a cosmopolitan species that is generally distributed worldwide the house fly, *Musca domestica* transmits many diseases to humans. House flies are medically and forensically important flies. Thus, the investigation of the development of *M.domestica* is of very important both for the control of its colony and for the estimation of the minimum postmortem interval (minPMI). Diclofenac sodium (DS) is a non-steroidal anti-inflammatory agent widely used as analgesic. Non-steroid anti-inflammatory drugs are commonly used both in medicine and veterinary medicine. Therapeutic effect of non-steroidal anti-inflammatory drugs can also cause poisoning. This study evaluated the effects of diclofenac sodium on some life history parameters of *M. domestica*.

Methods: The drug used in this research was Dikloron (manufacturer Deva) in the form of tablets. One tablet contained 75 mg of diclofenac sodium. The dicloron tablets were crushed and then mixed with portions of wheat bran diet. Four replicates of 35 first instar larvae each were performed for each concentration and for the control group (control), which was performed with artificial diet without the drug. Four different doses of dicloron l (the control, 0; LD50, 2LD mg/g, 3LD) were spiked into the artificial diets and fully mixed before solidification. The larval lengths, weights, development periods, mortality, pupal weights, adults weight were also calculated

Results and Conclusion: All the drug doses increased the mortality of *M. domestica*. The drug has affected significantly the morphological measurements (weight, and length) of the different developmental stages The obtained results indicate that the diclofenac sodium affects larval development and alters the estimation of the total developmental duration. We concluded that the presence of diclofenac sodium in the corpse should be kept in mind in a criminal investigation. The life-history parameters of *M. domestica* may be significant in correctly determining the time of death of humans or animals in cases of diclofenac application

Keywords: Forensic Entomology, Forensic Veterinary Medicine, Entomotoxicology, Drugs, Post Mortem Interval

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RECENT JUDGMENTS WITH REGARDS TO MEDICAL NEGLIGENCE

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A patient approaching a doctor expects medical treatment with all the knowledge and skill that the doctor possesses to bring relief to his medical problem. A doctor owes certain duties to his patient and a breach of any of these duties gives a cause of action for negligence against the doctor. The services of the doctors are covered under the provisions of the Consumer Protection Act, 1986 and a patient can seek redressal of grievances from the Consumer Courts. To obtain more knowledge five recent judgments with regards to medical negligence will be discussed in the present lecture. In addition, case of Jacob Mathew vs Punjab & Anr (2005) in the bench of CJI R.C. Lahoti, G.P Mathur, P.K. Balasurbramanyan and its guidelines for states of Haryana and Punjab will be discussed.

Keywords: Negligence, Recent Supreme Court Judgements

ANTHROPOLOGY SESSION

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EXPLORING THE IMPACT OF FORENSIC ANTHROPOLOGY ON EARTHQUAKES: A DISASTER ANTHROPOLOGY PERSPECTIVE

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Background and aims: Earthquakes are natural disasters that can result in significant loss of life and damage to communities. In the aftermath of such events, forensic anthropology plays a critical role in the identification and analysis of human remains. By applying scientific techniques and methodologies, forensic anthropologists contribute to victim identification, facilitating the recovery process, and providing closure for families affected by the earthquake. However, the specific impact of forensic anthropology on earthquakes and its integration within the broader field of disaster anthropology remains an area that requires further exploration and understanding. By critically analyzing the current practices and challenges faced by forensic anthropologists in earthquake scenarios, this study aims to identify areas for improvement and suggest future directions for research and development in the field.

Methods: The combination of literature review, case studies, expert interviews, data collection and analyses and ethical considerations will contribute to a well-rounded exploration of the topic, facilitating the identification of best practices and areas for improvement in forensic anthropology's role in earthquake response and victim identification.

Results: The study revealed that forensic anthropology plays a crucial role in earthquake response efforts. The research findings demonstrated the effectiveness of various forensic anthropology techniques in earthquake scenarios. Skeletal analysis and dental records proved particularly valuable for individual identification, while DNA analysis played a significant role in cases where remains were heavily commingled or decomposed.

Discussion – Conclusions: In conclusion, this study has explored the impact of forensic anthropology on earthquakes from a disaster anthropology perspective and highlight the importance of interdisciplinary collaboration. Forensic anthropologists contribute to victim recovery, identification, and the documentation of human remains in challenging disaster environments. It reveals that forensic anthropologists should definitely cause in the field after a disaster in Turkey.

Keywords: Anthropology, Disaster, Forensic Sciences, Identification

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SEX ESTIMATION USING HUMERUS, RADIUS AND ULNA IN THE CONTEMPORARY CROATIAN POPULATION SAMPLE

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Background and aims: The estimation of sex from skeletal remains represents an important first step in the process of identification. When pelvic bones are not available for sex estimation, the osteometric method on the long bones is preferred. The primary aim of this study was to determine if humerus, radius, and ulna exhibit sexual dimorphism in a contemporary Croatian population sample. The secondary aim of this study was to establish population-specific standards and discriminant equations for humerus, radius, and ulna for the contemporary Croatian population.

Methods: The study was conducted on a sample consisting of 64 female and 81 male skeletal remains of victims of the Homeland War (1991 – 1995). We measured ten anatomical parameters on humerus, seven on radius, and seven on ulna. Student T-test was used for comparing the means. ROC curve analysis was used to determine the cutoff points that yielded the highest accuracy in sex estimation. Discriminant function analysis was performed, and discriminant function equations were established for each bone based on the measured anatomical parameters.

Results: All measured anatomical parameters were significantly greater in males than females ($p < 0,0001$). ROC curve analysis yielded cutoff points that demonstrated accuracy of sex estimation ranging from 69.4% to 87.9%, with CTHB performing best for humerus, MRL performing best for radius, and MUL performing best for ulna. Discriminant function analysis demonstrated accuracy ranging from 88.0% to 91.2% (original grouped cases) and from 84.2% to 88.5% (cross-validation), and discriminant function equations were formed for each of the bones.

Conclusions: Our study indicate that humerus, radius, and ulna exhibit sexual dimorphism and that discriminant function equations using measured anatomical parameters of humerus, radius and ulna can be used to estimate sex in the contemporary Croatian population with good accuracy.

Keywords: Forensic Anthropology; Sex Estimation; Humerus; Radius; Ulna; Discriminant Function Analysis

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EVALUATION OF FRONTAL, MAXILLARY, AND SPHENOID SINUS DIMENSIONS USING COMPUTED TOMOGRAPHY FOR SEX ESTIMATION IN ADULT TURKISH POPULATION SAMPLE

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Background and aims: Estimating sex is the crucial component of establishing a identity. The fact that the paranasal sinuses are sheltered within the skull bones and are more robust, dense, and minor in structure increases their resistance to external effects and allows more accurate measurements. In this study, gender differences will be investigated by measuring the frontal sinus (FS), maxillary sinus (MS), and sphenoid sinus (SS) on Paranasal Sinus Computed Tomography (CT) images and the discrimination power of paranasal sinus sizes will be compared with each other in terms of sex determination.

Methods: Cases aged 20-49 years who underwent Paranasal Sinus CT were included in this study. Right and left FS height, depth, width, and distance of both frontal sinus peaks to each other, both MS height, depth, width, midpoint width, intermaxillary length, both SS height, depth, and width of each case were measured twice by two different operators. Each sinus measurement in sex determination was analyzed by Receiver Operating Characteristics (ROC) curve analysis. Pearson Correlation or Spearman Rank Correlation coefficients were calculated to examine the relationships between continuous variables. In multivariate analysis, logistic regression analysis was performed using all sinus parameters. The Hosmer-Lemeshow test was used for model fit. A $p<0.05$ was accepted as a criterion for statistical significance in all tests.

Results: It was determined that 19 of the 22 paranasal sinus sizes measured in the study were larger in men. The measurements with the highest accuracy in sex determination were left FS depth (73.5%), right FS depth (73.2%), and right MS height. An equation formulated by using logistic regression analysis, obtained 75.9% accuracy.

Discussion - Conclusions: The study shows that paranasal sinus dimensions can be used in sex determination. Multicenter national studies are required for its use in daily practice.

Keywords: Forensic Anthropology, Identification, Sex Determination, Paranasal Sinus, Computed Tomography

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FORENSIC CONSIDERATIONS IN THE RECOVERY OF HUMAN REMAINS FROM AQUATIC ENVIRONMENTS

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Background and Aims: The recovery of human remains from various sites does not always follow a standardised procedure and forces forensic practitioners to sometimes think unconventionally. Whilst there is ongoing research on the various factors which may affect human remains in aquatic environments, there are gaps within the scientific literature regarding which factors and to what degree they affect human remains in aquatic environments in the UK. There is limited literature that compares human remains between ground burials and aquatic environments. This review study aims to review the external factors and the degree in which they may affect human remains and to offer a comparison of aquatic environments to ground burial environments.

Methods: Both qualitative and quantitative research tools were employed in this study to account for the statistical nature of the topic. Using a set of keywords and online databases, we identified 30 peer-reviewed articles spanning the years 2016 to 2023. Additionally, we analysed two case reports. The analyses undertaken utilized purposive sampling as well as grounded theory.

Results: Our qualitative and quantitative evaluation identified seven external factors which have a statistically greater potential to affect human remains in aquatic environments. These are: (1) the process of decomposition in aquatic environments, (2) the impact of salt water on human remains, (3) aquatic movement, (4) water depth and (5) aquatic pressure, (6) animal activity and (7) temperature.

Discussion - Conclusions: We identified 7 factors that appear to affect human remains in aquatic environments and compared these environments to ground burials. The degree that these factors affect human remains in aquatic environments ranged from significant to detrimental. When comparing aquatic to ground environments, our research found the significant similarities in both the process of decomposition and the infestation by animal activity. We also identified a set of significant differences regarding the different types of animals as well as, temperature, and the positions of the deceased in water and burial environments. Currently, there is limited number of studies that systematically approach human remains recovered from aquatic environments making it necessary to undertake further research on the topic.

Keywords: Forensic Medicine, Forensic Anthropology, Human Remains, Aquatic Environments, Ground Burial Environments.

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EVOLUŢION OF FORENSIC ANTHROPOLOGY IN ROMANIA AND THE INTERNATIONAL STANDARDS IN FORENSIC IDENTIFICATION

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Resolving cases of unidentified human/skeletal remains and long-term missing persons is essential for administrative, legal and humanitarian reasons. There are various methods that can be used to build biological profiles for identification. However, their usefulness depends on several factors. First, unidentified human/skeletal remains can be found at different stages of decomposition, so the availability and diversity of post-mortem information will differ. Secondly, the availability and totality of ante-mortem information of missing persons will vary widely.

It therefore becomes essential that existing methods are appropriate according to the quality and quantity of postmortem and/or antemortem data. The primary methods of forensic identification involve comparing digital, dental, genetic and medical data. Secondary methods involve anthropological, radiological, geochemical, anatomical data, all of which provide multiple additional evidence to support the identification process. In addition, emerging forensic and forensic molecular technologies such as genomics, epigenetics and proteomics, together with the biological profile obtained, provide new investigative avenues for establishing identity.

However, despite the success of these individual methods, their limitations must be considered when used in isolation. A shift from a multidisciplinary approach to an interdisciplinary approach is needed to reach a holistic identification that can be presented as accurately and accurately as possible. The implementation of such an approach would facilitate accurate, efficient, and systematic identification of unidentified human/skeletal remains. This paper aims to highlight the evolution of forensic anthropology in Romania compared to other Balkan countries, as well as current and emerging forensic and forensic profiling methods available for the forensic identification process. We also want to highlight how their interdisciplinary use will ensure that precise and comprehensive conclusions are reached about identity and the timely resolution of these cases.

Keywords: Forensic Anthropology, Romania, International Standards, Forensic Identification

CRIMINALISTICS SESSION

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THE ROLE OF VEGF AND HMGB1 IN WOUND AGE DETERMINATION- A PILOT STUDY

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Background and aims: Determination of wound age helps in providing answers to questions associated with the investigation of criminal-legal cases. The aim of this study was to develop a more accurate method for wound age determination. The principal aim was to determine the changes in mRNA expression in the wound healing process and to apply them in estimating wound age. This investigation was based on a previous scientific knowledge about the wound healing process, i.e., time-dependent events in the process controlled by the changes in gene expression at a precisely determined time intervals. Therefore, the study defined the correlation between the expression of the analyzed genes by mRNA (HMGB1 and VEGF) and wound age.

Methods: The study included 31 wound samples from autopsy cases. Wound samples were divided into five groups: Control group – specimens of intact skin (n=6); The first group consisted of cases with immediate death (n=8); The second group - 1 to 6 hours (n=5); The third group - 6 to 72 hours (n=5) and the fourth group - 72 to 168 hours (n=7). The relative quantity of the transcripts of interest in each of the phases of injured tissue was measured by real-time PCR.

Results: The study detected increased expression levels of the examined VEGF and HMGB1 marker in the third group that consisted of cases with survival time from 6 to 72 hours. From these results, we can conclude that VEGF and HMGB-1 could be used as a marker in wound age determination.

Discussion – Conclusions The limitation of this study was the small number of wound samples which were analyzed. Furthermore, research is needed involving a larger number of wound samples, which would be divided in several groups and to be included others target markers.

Keywords: VEGF; HMGB1; Wound Age; Real-Time PCR; Autopsy Cases; Human Dermal Injuries

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USE OF INNOVATIVE SAMPLE DRYER FOR EFFICIENT SAMPLE PRESERVATION IN FORENSIC INVESTIGATIONS: AN EXPERIMENTAL STUDY

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In the realm of innovation in health technologies, a cutting-edge sample dryer has been developed under our funded research project. It was aimed to create a tamperproof sample packaging and sealing kit, incorporating an effective sample dryer technique for sample preservation in Forensic investigations. The innovative design of the sample dryer has been registered with the Intellectual Property Rights (IPR) office in India.

The primary objective of the sample dryer is to enhance the preservation of biological evidence in forensic investigations. Before transferring samples to sealed containers for preservation, the samples undergo a drying process using the sample dryer. This process employs various air movement techniques, such as horizontal, vertical, and circular laminar flows, to rapidly remove moisture from the samples, preventing their degradation due to microorganisms. The swift drying process also facilitates early packaging and handover of the samples to the investigating officer for transportation to the Forensic Science Laboratory while maintaining the samples' quality for analysis.

To assess the effectiveness of the sample dryer, experiments were conducted using both traditional ceiling fans and the newly developed sample dryer, each generating different types of airflow. The drying time for each experimental item was recorded once manual confirmation of complete drying was obtained. The results were remarkable, showing that the sample dryer reduced the drying time by up to 27 times compared to using a ceiling fan for the same samples. The diverse airflow patterns created by the sample dryer demonstrated clear utility in achieving superior sample preservation through efficient air drying.

Based on the remarkable outcomes observed during the experimental phase, we strongly recommend the adoption of this innovative sample dryer equipment for efficient sample preservation and successful forensic analysis.

Acknowledgement: To Indian Council of Medical Research (ICMR) for funding this research project under extramural grant scheme.

Keywords: Sample' s Dryer, Sample Preservation, Biological Samples, Forensic Investigations

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THE APPLICATION OF ENVIRONMENTAL DESIGN PRINCIPLES IN PREVENTING CRIME AND REDUCING THE FEAR OF CRIME IN CITIES: THE CASE OF KOCAELİ, TURKEY

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Background and aims: Crime and fear of crime, one of the main problems that arise with ever rising urbanization rates in the world, have a negative impact on the quality of life of individuals. Forensic sciences work on crime prevention policies as well as crime investigation. Social strategies, physical and spatial changes and legal regulations implemented before the crime occurs constitute the basis of crime prevention. Forensic architecture, a sub-branch of forensic sciences, conducts studies that explain crime-space, criminal-space relations and examine spatial features that witness crime scenes.

Methods: In this study, the characteristics of safe cities are examined, the reflections of urban spaces and living environment on human psychology are prioritized, evaluations are made in the spatial context and solution suggestions are presented. For the holistic study, current crime statistics were evaluated, decision-makers in local governments were interviewed and city residents were surveyed. In this direction, solution proposals have been presented within the scope of crime prevention for a new design model in the context of CPTED principles in Mehmet Ali Pasha neighborhood, which is expressed as the most insecure in Izmit District.

Results: In line with the observations made in the study area, it has been determined that there are factors that are considered negative for crime and fear of crime such as poor housing quality, low lighting level problems, and idle areas.

Discussion - Conclusions: Spatial analyses to be made at the urban scale, the opinions of decision-makers, and the cooperation of law enforcement agencies authorized to provide real crime data of the region should be carried out under the "safe city" strategy, location-specific design proposals should be created in line with CPTED principles, and intervention maps should be prepared accordingly. In this direction, a pilot study that can be applied to other regions has been prepared.

Keywords: Forensic Science, Crime Prevention, Urban Design for Crime Prevention, Forensic Architecture, CPTED

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OPTIMIZATION OF SOLID-PHASE MICROEXTRACTION TECHNIQUE FOR THE RECOVERY EFFICIENCY OF GASOLINE

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Background and aims: The use of an ignitable liquid is the most common way to start a fire in arson crimes. These liquids are favored for their volatility, easy ignition and easily accessibility. The ability to characterize an ignitable liquid in the evidence collected from fire debris is important in fire investigations. If an ignitable liquid was used to start the fire, analysis of samples may show that traces of ignitable liquid are still present in the samples due to incomplete combustion. Solid-Phase Microextraction (SPME) is widely used in the field of fire investigation and has many advantages compared to other techniques. In this study, an optimization of the SPME sampling technique for gasoline was aimed by investigating its effect on recovery performance.

Methods: Optimization studies were carried out using gasoline supplied from a local gas station. Five µL of gasoline was dropped on paper and trials were performed for sampling time and temperature, desorption time and cleaning procedures. The SPME fiber (100 µm) was placed in a headspace vial for sampling and the samples were analyzed by GC-MS system. Each analytical condition was tried 6 times to check out the repeatability and precision.
Results: The analysis showed that the best detector response was obtained at 6 minutes for sampling time, 70°C for sampling temperature, 20 seconds for desorption time. Also 5 minutes for the fiber cleaning procedure without contamination was found appropriate.
Discussion - Conclusions: In this study, SPME method was optimized to identify volatile compounds of gasoline and all selected compounds (n=18) were detected. The SPME method has been proven to provide optimum sample preparation and analysis time compared to existing methods. For further fire investigations, developed SPME method should be used in different substrates (textile, glass, wood etc.) not only for gasoline but also diesel and kerosene.

Keywords: Gasoline, SPME, GC-MS, Fire Investigation, Arson

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REVENGE DIGITAL PORNOGRAPHY: A CRIMINALISTIC PERSPECTIVE

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Deepfake is an artificial intelligence application that replaces a person's voice and/or image with that of another person using artificial neural networks, allowing people to be shown in unreal sexual content that is not permitted. Through the application of machine learning algorithms to images and recordings of people, deepfake applications produce realistic imitations. A major threat posed by deepfake technology is revenge pornography. Revenge pornography uses fake images and pornographic content that includes the victims.

It is considered a crime to share sexual images in the virtual environment without consent, which is considered revenge porn. This is a form of cyber harassment. It is regulated by law in the United States, Belgium, Italy, Israel, Germany, the UK, and Australia.

A criminological examination of the technologies underlying revenge porn reveals that face swapping, face creation, and expression changing technologies are the most prominent private manipulation techniques. In the face swap application, the existing pornographic image is replaced with the victim's face; in the expression change application, the facial expression of the victim in a real photo or video image is changed to be confidential or to speak confidentially. As part of the face creation technology, which is another form of revenge porn, a virtual persona similar to the victim is created and digital pornography is performed on the virtual persona.

According to international law, the states of Virginia and California have enacted regulations regarding fake pornographic content created by deepfake applications. On the other hand, under Turkish law, with the priority of the Constitution of the Republic of Turkey titled Protection of Personal Rights, legal liability may be asserted for violations of the Turkish Penal Code relating to private life, personal data protection, and defamation caused by counterfeit revenge pornography. In the case of revenge porn, which has extremely serious consequences, since the victim's victimization increases with each second, he is on the Internet, the content can be removed from the Internet immediately if this is the case. A measure can be taken pursuant to Article 9 of the Law No. 5651, which constitutes a legal opportunity in Turkish law to remove the content from the Internet.

Keywords: Deepfake, Revenge Pornography, Criminalistics

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CORRELATION BETWEEN APPLIED AND MEASURED FORCES BY USING AN S-PEN IN DIGITALLY CAPTURED SIGNATURES

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Background and aims: Digitally captured handwritten signatures (DCSs) have been becoming more commonly used in daily life in many countries: a touchpad or a tablet with a stylus pen is generally used to sign or write an electronic document. The hardware serves as a storage for biometric data of the signatures like time, speed, and force which provides a great advantage compared to paper-based writing. In recent years, touchscreen tablets and passive capacitive stylus pens have been preferred due to their easy use and low cost. Biometric data like speed, time, and force can be recorded using passive capacitive stylus pens as well as active force sense pens. The aim of the present study is to measure the relationship between the measured force by the tablet and the applied force due to the changing mass on the pen, and express this relationship with a mathematical equation.

Methods: Measurements of the force against changing mass were made with Samsung Galaxy Tab S6 Lite and 3 different stylus S pens: an unused pen with a sharp tip, a used pen with a blunt tip and a pen with a defective tip. Force measurements were carried out by loading and unloading different masses on the pencils. The experimental setup was designed and printed by using a 3D printer in our lab. The measurements were repeated 3 times for each S-pen.

Results: The force values were recorded against changing mass for three S-pens and it was found that the best fit was obtained when using a sixth-degree polynomial function. The force value of the used blunt tip pen and the defective tip pen reached the maximum relative force value when the mass was 295 gr whereas the maximum relative force value was reached at 937 gr mass for the new sharp pen. We found deviations in the force values obtained with the defective tip pens, e.g., lower force values were obtained for the masses over 295gr.

Discussion - Conclusions: In this study, we observed that when using a passive pen, force sensitivity decreases as the pen wears out after a certain period of time. It is necessary to measure the force depending on the load and replace the pen or its tip at certain periods if passive pens are preferred to be used regularly.

Keywords: Forensic Engineering, Digitally Captured Signatures, Biometric Data of Signatures

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UNVEILING FORENSIC CLUES: EXPLORING COSMETIC TRACE EVIDENCE THROUGH RAMAN SPECTROSCOPY

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Background and aims: The inclusion of cosmetic identification within forensic inquiries dates to 1912 when Edmund Locard discerned that pink dust beneath a homicide suspect's fingernail corresponded chemically to a face powder discovered in the victim's quarters. His renowned principle of exchange asserts: "Every contact leaves traces." To sum up, remnants of cosmetic items tend to be frequently encountered at crime scenes. The probative worth of trace evidence hinges on the analysis technique employed. An optimal approach should fulfill criteria of non-destructiveness, reproducibility, and the ability to scrutinize minute sample quantities with minimal or no preparatory steps.

Methods: Over the course of the previous ten years (2013–2023), a multitude of research articles have been released concerning the forensic examination of cosmetic products. As a proactive endeavor to identify an appropriate approach for analyzing cosmetic evidence, novel methodologies, and techniques have continuously surfaced. In this ongoing study, we have aggregated the endeavors undertaken in the forensic analysis of diverse cosmetic varieties, aligning them with Raman Spectrometry, thereby offering an all-encompassing perspective on the importance of cosmetics as evidential material. These undertakings mentioned above have been consolidated within a table, offering a comprehensive overview.

Results: The existing body of literature about using Raman spectrometry for cosmetics analysis is constrained. Despite the non-destructive nature of Raman spectroscopy, its ability to differentiate between samples is compromised due to the interference of fluorescence within the spectrum. This interference has been attributed to components like wax, oil, and certain dyes. While there have been numerous forensic investigations into cosmetic items such as lipsticks, kajal, lip glosses, and nail polish, utilizing diverse techniques (notably infrared spectroscopy), there exists a paucity of information concerning the spectroscopic analysis of facial creams and their identification. The bulk of these studies have concentrated on lipstick evidence.

Discussion - Conclusions: In contemporary times, the trend involves countering subjective interpretations of spectra by incorporating statistical tools to foster objective analysis. Furthermore, a combination of different techniques is being employed to effectively achieve a significant level of discrimination in cosmetic evidence. This approach acknowledges the inherent strengths and weaknesses of each technique.

Keywords: Forensic Sciences, Cosmetic Products, Trace Evidence, Crime Scene, Raman Spectroscopy

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FIND ME THE FIRST INTERNATIONAL FORENSIC APP FOR SMARTPHONES AND TABLETTS: A FREE OPPORTUNITY FOR DOCUMENTATION OF INTERNATIONAL STANDARDS IN SINGLE CASES AND DISASTER VICTIM IDENTIFICATION

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Background and aims: International forensic standards (Interpol / ICRC / Istanbul Protocol/ Minnesota / Bournemouth / ENFSI) have been established for years and can be found on the internet. In daily work, however, these have to be printed out and downloaded. The electronic documentation of these standards was time consuming and required training. Electronic databases specifically for work during terrorist attacks or major disasters were extremely cost-intensive. Only a few rich industrial nations could afford this software. Military software solutions were not available for civilian use or in university forensic practice. Standard software solutions were often not able to integrate local protocols and standard operational procedures, which meant difficulties and acceptance problems for the forensic scientist in the daily casework. These difficulties led already 6 years ago to the development of a freely available app software, which enables every forensic practitioner free of charge to implement standard protocols in the daily work in cooperation with local legal requirements.

Methods: With the help of an APP software solution, international standards can be digitally recorded and processed. Besides the protocols of Interpol, ICRC, Bournemouth, Minnesota and Istanbul, local protocols can be integrated and stored locally, online and offline. The app includes a match search function between missing persons and family members, enables tracking of survivors, victims and evidence and is also available for the emergency services. Unique File Numbers and reports can be printed directly. In conjunction with DVI Systems' new DVI Booklets, triage and CBRNe resistant evidence collection is integrated. The app is available in the four INTERPOL languages and can be supplemented bilingually with the national language.

Results: The use of an app can greatly simplify data collection in the daily routine and contributes to quality assurance and quality management. International protocols are available everywhere at any time, which is especially important in disasters with international victim involvement.

Discussion - Conclusions: A forensic process ensured in this way improves the transparency of the necessary forensic investigations and creates trust among the victims' families. They can receive reliable answers in the shortest possible time.

Keywords*:* Free Forensic APP, Living Victims, Data Management, Forensic Workflow, Quality Management

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DEVELOPMENT OF A BIOSENSOR WITH GREEN SYNTHESIS FOR THE DETECTION OF LATENT FINGERPRINTS OBTAINED FROM CRIME SCENE

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Background and aims: Fingerprints, which form a partial representation of the skin pattern on the human finger, are used effectively in the field of forensic sciences as important evidence for individual identification. The most common fingerprints at crime scenes are latent fingerprints. Various methods have been developed for the detection of latent fingerprints. However, traditional methods have some limitations. In these cases, since the reactivity of the chemicals with the components in the fingerprint decreases, it becomes difficult to visualize the fingerprints with these methods. The fluorescence techniques we apply are one of the most preferred methods for fingerprint visualization.

Methods: Fluorescent carbon nanoparticles were synthesized by hydrothermal method. Optical characterization of fluorescent carbon nanoparticles synthesized by green synthesis method was performed using UV-VIS spectrophotometer, FTIR spectrophotometer and spectrofluorometer. After characterization, appropriate concentration was determined for application with both liquid-spray and powdering methods. Fingerprints left on aluminum, glass, plastic, processed and untreated wood materials and paper surfaces were made visible with the help of visualization tools produced by both methods.

Results: In our study, fluorescent carbon nanoparticles were produced by using five different sources, namely pineapple, orange, avocado, potato and mango, and the nanoparticles were used to make invisible fingerprints visible on different surfaces. The results of each sample were compiled by photographing under a UV lamp.

Discussion - Conclusions: Within the scope of the study, it is aimed to bring together the fields of Biochemistry and Forensic Sciences on a common ground, to design a biosensor that is not available in the literature, Thus, a product that will easily find application in the field will be created. In addition, alternatives will be produced to the methods and/or chemicals used in the determination, which will not disrupt the structure of different molecules at the crime scene where the findings are located. As a result, fingerprints will be visualized by methods with high efficiency, high contrast and selectivity, and low background interference.

Keywords: Forensic Sciences, Chemistry, Latent Fingerprint, Fluorescence Carbon Nanoparticle, Green Synthesis

FORENSIC PSYCHIATRY & BEHAVIOURAL SCIENCES SESSION

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EVAULATING RELATIONSHIP BETWEEEN POSTPARTUM DEPRESSION AND INFANTICIDE FROM FORENSIC PSYCHIATRIC PERSPECTIVE

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Background and aims: Postpartum Depression (PD), also referred to as postnatal, perinatal, or peripartum depression, constitutes a significant psychological condition categorized within depressive disorders. This condition gives rise to profound challenges in both the mother's and the infant's lives, occasionally culminating in instances of infant abuse and infanticide. Within the realm of forensic psychology, PD holds particular gravity, especially in determining appropriate penalties for offenders. Given its classification as a mental illness, it becomes imperative to screen mothers, who might be perpetrators of infanticide, for PD. This paper seeks to comprehensively examine the existing literature concerning postpartum depression and its association with infanticide.

Methods: This literature review encompasses English and Turkish articles accessible in full text, focusing on the intersection of postpartum depression and infanticide. The search was conducted using the 'scholar.google.com' search engine, employing keywords such as 'postnatal depression,' 'peripartum depression,' 'postpartum depression' in conjunction with terms like 'infanticide,' 'infant abuse,' and 'neonaticide.'

Results: PD emerges as a critical concern significantly impacting maternal well-being and the mother-infant relationship's dynamics. Mood fluctuations and instances of psychotic episodes within the initial year postpartum can be contributing factors to incidents of infanticide. Notably, the risk of postpartum psychosis is a key predictor of such events. A study revealed a correlation between high PD scores and instances of sudden infant deaths. Furthermore, legal cases like Texas v. Andrea Yates have been scrutinized to assess the role of PD in judicial processes.

Discussion and Conclusions: In the context of forensic evaluations, thorough screening for PD and the implementation of requisite interventions is imperative, necessitating heightened awareness. At the community level, safeguarding maternal mental health and fostering social support assume pivotal roles in preventing such cases.

Keywords: Postpartum Depression, Infanticide, Mental Illness Defense

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PSYCHOLOGICAL AUTOPSY AND ITS IMPACT ON UNDERSTANDING SUICIDE

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Background and aims: Suicide represents a significant public health problem worldwide. Understanding the complexities behind it is crucial for prevention strategies. Psychological autopsy (PA) is one such method, which is underutilized due to methodological and practical challenges. This study aims to provide a comprehensive overview of PA, focusing on its methodology, uses, and limitations. This study aims to highlight its value in elucidating the multifaceted nature of suicide, provided a detailed questionnaire-based PA is made and administered to the next of kin to retrieve information.

Materials and Methods: The PA investigation was conducted on 35 cases of suicide. A structured, self-designed, close-ended questionnaire was prepared based on predictive factors associated with suicide to gather information from the deceased's close relatives or next of kin, including family members, friends, medical and mental health professionals, and other relevant individuals. Qualitative and quantitative research methods were used to analyze the collected information.

Results: The results indicated several factors associated with suicide, including mental health problems, life stressors, interpersonal conflicts, substance abuse, and a history of previous suicide attempts. The findings have important implications for suicide prevention strategies, emphasizing addressing mental health issues and providing social support.

Conclusion: The PA is a valuable tool for investigating and understanding suicide. A well-constructed questionnaire can minimize the challenges in PA. However, conducting psychological autopsies requires careful consideration of ethical issues. Further research is needed to replicate and extend the findings of this study.

Keywords: Suicidal Case, Psychological Autopsy, Autopsy, Post-Mortem Examination

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PHYSICIANS' ATTITUDES TOWARDS CHILD ABUSE AND NEGLECT (CSA) REPORTING AND RELATED FACTORS

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Background and aims: Investigating physicians' knowledge, experience, work conditions, and attitudes towards CSA is important for the preparation of needs-oriented trainings and enhance reporting rates.

Methods: 534 physicians (pediatricians, family physicians, emergency medicine specialists) with a mean age of 32.5 years participated in the study. Participants answered an online questionnaire created by the researchers. Jamovi 2.3.21 was used in the analysis.

Results: Only 55% of respondents had received CSA training. Thirty-four percent of the participants had personally reported CSA to the authorities, while 16.7% said that although they had suspicion, they did not report it. More than half of the physicians stated that there was neither a separate unit for in their institution (82%) nor a written guideline for CSA management (95.7%). Participants were more confident in their ability to recognize physical symptoms of each type of abuse than behavioral/psychological symptoms. The most commonly reported personal barrier to reporting was being harmed by the perpetrator (51%), child and family related was the possibility that the perpetrator would harm the child further (86%). Fourty-four percent of the participants think that they may miss signs of CSA due to the intense workload. Those who have received CSA training have a higher reporting rate than those who are untrained and feel more competent in recognizing signs of CSA. Those who have not received training consider the emotional burden they will experience due to the case and the possibility of putting the institution they work for in difficulty as barriers in case reporting more than those who have received training.

Conclusions: The study shows that physicians need training in recognizing and managing physical and psychological/behavioral symptoms of CSA, there is a need for written flowcharts on CSA management, and individual needs such as emotion management should be prioritized in case management training.

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THE FACE OF THE ROMANIAN FORENSIC PSYCHIATRY SYSTEM RELATED TO THE ADMISSION OF PATIENTS UNDER THE CONDITIONS OF THE CRIMINAL LAW

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Background and aims: Romania has legislation that allows persons diagnosed with mental illness, who have committed a crime, without discrimination, to fall under the Criminal Code by applying the safety measure of medical hospitalization. This measure is a controversial one that requires greater attention in its application, like any omission on the part of the authorities can lead to the violation of various human rights. But, on the other hand, it contributes to improving the mental state of criminals who pose a danger to themselves or others. From this perspective, legislation defines and limits the circumstances in which this can occur in order to prevent human rights violations. The objective was to evaluate the criteria for the application of the safety measure of medical hospitalization, as well as procedural aspects.

Methods: We managed to carry out an analysis of the national institutions where the perpetrators serve their sentences, called "psychiatric and security hospitals". Thus, we tried to identify the most frequently encountered diagnoses, the most frequently committed crimes as well as the main problems faced by these institutions, the most important one being overcrowding.

Results: All the data collected directly from all psychiatric hospitals and for safety measures in Romania, being raw information, were interpreted and analyzed in relation to the objective of our study.

Discussion - Conclusions: The findings were presented in order to allow Romanian decision-makers to adopt resolutions regarding the future evolution of the mental health and legal system, with the ultimate goal of improving the application of this measure and protecting the perpetrator.

Keywords: Forensic Psychiatry System, Criminal Law, Psychiatric and Security Hospitals, Perpetrator

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THE "BLUE HORSE" AND THE ITALIAN PSYCHIATRIC REFORM

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Dr. Franco Basaglia was an Italian psychiatrist, an innovative personality in the field, known for his interest in unconventional methods of treatment.

In Basaglia's conception, communication with the patient and ensuring their total independence are the main means of recovery. He tried to create the premises for the patient's recovery by seeing the patient as a person, recognizing their rights as citizens, trying to consolidate a close relationship with them, as well as evaluating their future after stabilization, therefore elaborating various means for patients' social reintegration.

Basaglia's ideas were long discussed during the first World Congress of Social Psychiatry, in 1972, in London. Here, he surprised the psychiatric world by proposing the abolition of psychiatric hospitals and their replacement with social centers and home treatment. In 1972, the Trieste Psychiatric Hospital was closed, and in 1981, the Trieste Mental Health Department was established.

The symbol of this reform was the "blue horse", the horse symbolizing the freedom and strength of the patients' will, and the blue color the fact that they are somehow different from the rest of the population.

Therefore, the Italian health system is based on *mental health centers*, permanently opened, staffed by doctors, psychologists, nurses and social workers; *protected houses* are bought by local administrations, and patients can live here as long as necessary for rehabilitation, but they can return to their families at any time; *acute wards* are the place where psychiatric emergencies are treated, but the doors are open, patients have access to the whole ward, and the staff do not wear white coats; *family associations*, usually made up of family members of psychiatric patients, who get involved in changing the legislation in their favor, and exert pressure on the local authorities to purchase as many protected houses as possible and create normal living conditions in them; *social cooperatives*, which are social integration structures with deinstitutionalizational roles; *day centers* offer rehabilitation, socialization, and health promotion activities.

Keywords: Community Psychiatry, Psychiatric Reform, Blue Horse

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"THE VIEW WAS TO DIE FOR": A THEMATIC ANALYSIS OF ONE SENTENCE SUICIDE NOTES

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Background and aims: Suicide is a complex phenomenon that researchers from different disciplines like sociology, psychology, and forensic science try to understand different aspects of it. Suicidology which became a prominent study area by Durkheim' s writing is interested in the causes and prevention of suicide. From a forensic perspective, it's important to determine the cause of death. A suicide note is one of the elements that can be found at the crime scene and helps us to understand the context of the suicide. For that reason, qualitative analysis of the suicide notes can be helpful in understanding the motivation of the suicide.
Methods: In this study, a total of 752 suicide notes which were written between the dates 26.06.2020 and 18.06.2023 on the website have been analyzed. Sanctioned Suicide website which is a forum platform that allows interaction between the members is used as a data source. Thematic analysis is used to analyze the data. The thematic analysis steps determined by Braun & Clarke (2006) are followed.
Results: After final revision, 18 themes were identified which are already dead, anger/hate, blame, death, deserve this, disappointment, funeral/ death scenes, farewell, giving up, sorry/ forgive me, the feeling of not belonging, religious, revenge, relief messages, salvation, sarcastic, lost beloved ones and statement.
Discussion and Conclusions: To conclude, as these notes do not belong to actual suicides but people who planning to commit suicide, it can be helpful to design intervention programs. Even though there is a high number of themes, it can be useful for crime scene investigators to understand the cause of death.

Keywords: Suicide, Suicide Notes, Interpersonal Themes, Thematic Content Analysis

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USE OF SOCIAL MEDIA AND SOCIAL MEDIA ADDICTION IN CHILDHOOD ADOLESCENCE: A SURVEY STUDY

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Background and Aims: It can be clearly seen in the studies that the sources to access the Internet has increased in recent years and the age of users has decreased dramatically. According to Turkish Statistical Institute, it was observed that % 94.1 of the households had access to the Internet from home in 2022. This proportion was % 75.3 in 2019. This study was carried out to examine the aim of using social media, social media addiction, positive and negative effects of social media in adolescence.

Method: The study was carried out by implementing a questionnaire to collect data from the adolescents. "Social Media Addiction Scale for Adolescents" was used to collect and assess the data. The study group consisted of 420 adolescents attending 9th, 10th, 11th and 12th grades of an Anatolian High School affiliated to Fatih District Directorate of National Education in Istanbul. The age of students ranges from 15 to 18.

Results: % 51,9 of participants were boys and % 48.1 were girls. Social media addiction level of girls was higher than boys. It was observed that social media use at this age can result to addictive behaviors.

Discussion and Conclusion: Because of the extensive access of social media to several digital platforms, the adolescents can face with dangers such as physical, psychological and sexual abuse. These negative effects increase the rate of crime involvement.

Keywords: Child, Adolescent, Social Media, Addiction, Abuse.

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CIGARETTE, ALCOHOL AND CANNABIS USE IN HIGH SCHOOL STUDENTS AND ITS RELATIONSHIP WITH DEMOGRAPHIC VARIABLES, PSYCHOLOGICAL SYMPTOMS AND CHILDHOOD ABUSE

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Background: Social Development Model assumes that children and adolescents acquire their behaviors, especially through family, school, institutions, and peers. The aim of this study is to reveal the frequency of smoking, alcohol, and cannabis use among high school adolescents and its relationship with factors related to experiences with the immediate environment, mental health, and childhood abuse.

Methods: Ethical permissions are available and there is no conflict of interest. In this cross-sectional study, a multi-stage stratified sampling technique was used in the study and 1165 high school students participated in the study. Jamovi 2.3.21 was used for the statistical analysis and the significance level determined $p<.05$.

Results: While the mothers' education level did not differ between the user and non-user groups, most fathers who are primary school graduates or dropped out of primary school are from the substance users group. Females have a lower frequency of smoking than males. In the 16-17 years old, smoking eleven times or more is more common in males. Most of those who reported no lifetime alcohol use are females. The highest rate for the first alcohol intake was between the ages of 12-15. Males use cannabis more frequently than males. Females' emotional and social behavior problems are significantly differentiated between users and non-users. The emotional abuse score of the substance user group is higher than that of the non-user group. For females, only the physical neglect sub-dimension score did not show any difference between the user and non-user groups.

Conclusions: Gender and the father's education level appear to be associated with the use of different substances. Experiencing psychosocial difficulties can put girls at risk for smoking, alcohol, or cannabis use. Certain types of emotional abuse and neglect have been linked to substance use in girls.

Keywords: Cigarette, Alcohol, Cannabis, High School Students, Childhood Abuse

CLINICAL FORENSIC MEDICINE SESSION

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CHANGES IS FORENSIC MEDICAL PRACTICE FOR ISTANBUL PROTOCOL IMPLEMENTATION IN GEORGIA

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Background and aims: Istanbul Protocol implementation requires analysis of current legal norms and existing practices in medical and legal fields. Of special importance are the norms and regulations of forensic medical practice as the final medical conclusions, opinion forming and reporting widely depends on effective forensic medical practice.

Methods: Both retrograde and forward current evaluations of the systemic work was performed. Systemic SWAT analysis was performed with the scope of implementation of Istanbul Protocol standards.

Results and Discussion: Several gaps and weak points were noticed and analyzed in forensic medical practice, both governmental and non-governmental structures. Most of them could be considered characteristic for all post-Soviet countries, as follows:

Non-governmental forensic medical evaluations – existence of non-governmental forensic evaluations is a backbone for Istanbul Protocol implementation activities; especially in the beginning of the implementation practice the survivors of torture rarely apply to the governmental services and the only way to find both legal and medical support is possible via non-governmental centers; these centers could become the hub structures for effective documentation and rehabilitation practice; Challenges in legal regulations – mostly related to the criminal codes and health legislation; several aspects of legal regulations can be of interest and in many cases can be the subject of proper analysis and changes too, especially, regulations related to the forms of forensic evaluations, medical interview and examination practice, informed consent for forensic medical examinations, forensic opinion, status of forensic expert and so on.

Conclusions: Challenges in forensic medical practice must be addressed as commonly related to the weaknesses in legal norms but not rarely related to the existed old and bad practice, especially, the challenges of informed consent, comprehensive medical examination more than just dermatological evaluations, confidentiality of information, prompt forensic medical evaluations especially in detention places, forensic medical opinion forming and interpretation of medical findings.

Keywords: Forensic Medicine, Istanbul Protocol

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MEDICOLEGAL EVALUATION OF PREGNANT WOMEN VICTIMS OF DOMESTIC VIOLENCE

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Background and aims: Domestic violence is still a common public health problem around the world. Domestic violence is inherently difficult to detect and prevent. One of the groups most vulnerable to domestic violence is pregnant women. In our study, we aimed to examine the sociodemographic and medicolegal characteristics of pregnant women who were victims of domestic violence.

Methods: In our study, the reports of the Second Forensic Medicine Specialization Board of the Forensic Medicine Institute, between 01.07.2021 and 01.07.2023, on the cases that stated that they were exposed to domestic violence were examined retrospectively. Data were analyzed with SPSS 22.0.

Results: Ninety-two cases were included in our study. The mean age of these cases was 26.58 years. Considering the gestational periods of the cases; 70.65% (n:65) were in the first trimester, 15.21% (n:14) were in the second trimester, and 13.4% (n:12) were in the third trimester. When offenders were evaluated, it was seen that the current partner was the aggressor in 79.35% (n:73) of the cases, while there was more than one aggressor in 3 cases. While 67.4% (n:62) of the cases stated that abortion occurred due to domestic violence, 17.39% stated that this situation caused premature birth.

Discussion - Conclusions: We think that multicenter and prospective studies should be designed in order to reveal and prevent the characteristics of domestic violence that may cause severe trauma, mortality and morbidity in pregnant women.

Keywords: Forensic Medicine, Domestic Violence, Pregnancy

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NUCHAL LIGAMENT OSSIFICATION FRACTURE: A CASE REPORT

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Background and aims: The nuchal ligament originates from the external occipital protuberance, and continues in the midline all along posterior segments of cervical vertebrae until the spinous process of the 7th cervical vertebra and functions to limit hyperflexion of the head. The presence of ossification regions within a nuchal ligament could be a coincidental radiological finding in patients with chronic neck pain or cervical spinal injury. In our case, we aimed to evaluate the presence of the nuchal ossification point in the ligament and the meaning of fracture at the ossification point in terms of forensic medicine.

Case report: 45-year-old male patient was brought to emergency service due to a vehicle traffic accident, his open wounds on the right occipitotemporal region of the head and the dorsum of the left hand were sutured and was discharged on the same day, stating that no fracture was found. In the evaluation of the case who applied to our Department of Forensic Medicine with the request of a forensic report; in cervical vertebra computer tomography a hyperdense region of nuchal ligament ossification was detected at the level of the posterior segment of the cervical 5th vertebra and a fracture line was reported in this focus of ossification.

Results: In the medicolegal evaluation of trauma cases, detecting the bone injury is one of the important criteria for determining the nature of the injury.

Discussion – Conclusions: Considering that a fracture detected on the intraligamentous ossification point is an important indication of trauma, is important in differential diagnosis, and has the potential to affect the case' s daily activities depending on variables such as localization and dimension; in medicolegal evaluation, we think that fractures in intraligamentous ossification regions should be regarded as mild injuries that could be managed with simple medical interventions.

Keywords: Ligamentous Ossification, Neck Trauma, Fracture, Medicolegal Evaluation

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MEDICOLEGAL ASPECTS OF HAIR RESTORATION SURGERY

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Background and Aim: Hair restoration surgery is a medical aesthetic procedure performed to address hair loss or baldness issues and to enhancing appearance. Although hair transplantation is generally successful, being a surgical procedure, it can involve complications such as infection, graft loss, necrosis and scar formation, and anesthetic reactions. Patients facing adverse outcomes can pursue legal action, and it might be necessary to assess whether there was a medical malpractice in the hair transplantation procedure. This study aims to evaluate hair transplantation from a medicolegal perspective.

Methods: Hair restoration surgery cases reported between 2018 and 2022 by the 7th Specialization Board of The Counsel of Forensic Medicine were reviewed. Key aspects evaluated encompassed patient demographics, procedural facility characteristics, practitioner distribution by profession and authorization status, preferred surgical methods, encountered complications, initial postoperative observations and interventions, final findings, and the 7th Specialization Board's decisions.

Results: Out of the 27 cases reported, formation of scars around hair transplantation area and subsequent lack of hair growth in those areas as the most common reason to application at 48% (n=13). It was determined that 70%(n=19) of the cases had an informed consent form. Assessment of these reports revealed complications in 18 cases (67%), while 8 cases necessitated court determination of the operator's competence. Medical malpractice has been identified in 5 cases, of which 2 were attributed to unauthorized procedures and 3 were due to hair transplant application technique.

Conclusions: Hair restoration surgery significantly contributes to medical aesthetic procedures, to avoid encountering such cases, the most crucial aspect is to conduct a potential risk assessment and inform the patient about possible complications. Furthermore, unauthorized hair transplant procedures should be prevented in accordance with relevant regulations, and regular inspections should be carried out at the application centers.

Keywords: Clinical Forensic Medicine, Medical Malpractice, Expert Evaluation, Hair Transplantation, Hair Restoration Surgery

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EVALUATION OF FORENSIC MEDICAL ASPECTS OF MEDICAL INTERVENTIONS AND DAMAGES CAUSED BY UNAUTHORIZED PERSONS

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Background and aims: We aimed to raise awareness and make contributions by revealing the fact that serious bodily and mental harms occur due to medical interventions by the ones who do not have the authority to perform.

Material and methods: We evaluated 210 cases appealed to our institution between the years of 2017 and 2022 who suffered damage after medical interventions by people who do not have any authorization or license. The damages that occurred in the cases were evaluated in terms of medical and legal aspects.

Analysis of the data were done with SPSS 25.0 for Windows (SPSS Inc., Chicago, IL). Invariable groups were compared with Chi-SquareTests (PearsonChi-Square, Fisher'sExact Test) and the statistical alpha significance level were accepted as $p<0.05$

Results: 76.7% of the cases were women, 87.1% were young individuals under the age of 40. Of the medical interventions, 91.9% were for aesthetic/cosmetic purposes (laser epilation, tattoo removal, botox, dermapen, cold lipolysis), 8.1% were for therapeutic purposes (dental/sprained-dislocation intervention, tooth extraction/prosthesis, intramuscular injection, cupping pull) was found. It was found that 87.1% of the medical interventions were performed in beauty salons, 12.9% in hairdressers, home, medical markets, pharmacies and dental clinics. It was determined that 28.6% of the cases were within the scope of the aggravated injuries as a result of the Turkish Penal Code (TCK).

Discussion - Conclusions: Medical interventions, by their nature, are suitable to create danger on people's life. All over the world and in our country, serious bodily and mental injuries occur in people after medical interventions by unauthorized persons. Therefore, it is necessary to see this situation as an important problem, and raise awareness in the society to make legal arrangements.

Keywords: Unauthorized Medical Interventions, Bodily and Mental Injuries, Legal Regulations

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A MEDICOLEGAL APPROACH TO THE BLUNT ABDOMINAL TRAUMAS

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Background and aims: Blunt abdominal traumas often occur due to traffic accidents, pedestrian traumas, falling from a height, battering and are frequently encountered in clinical forensic medicine practices.

Material and methods: We evaluated 1048 cases appealed to our institution between the years of 2020 and 2022 having blunt abdominal traumas were evaluated. The mechanism, severity, distribution and characteristics of the affected organs and systems and their sequelae were examined. Imparement ratings were determined according to the AMA guides. Imparement ratings due to direct blunt abdominal traumas, imparement ratings due to associated traumas and total imparement ratings were all evaluated and compared.

Analysis of the data were done with SPSS 25.0 for Windows (SPSS Inc., Chicago, IL). and the statistical alpha significance level were accepted as $p<0.05$

Results: It has been observed that the rate of imparement ratings due to blunt traumas seen only in the abdominal region varies between 0% and 10%, and these rates increase depending on the accompanying bone fractures and injuries of the other regions of the body.

Discussion - Conclusions: These injuries occur with mechanisms such as compression of organs between the vertebrae and the abdominal wall with the direct effect of trauma, rupture between fixed and mobile regions with the effect of rapid deceleration, and bursting of hollow organs with increased intraluminal pressure. Blunt abdominal traumas can be seen as isolated, as well as due to the reflection of traumas from other regions to the abdominal region. It also occurs with bone fractures due to the direct transfer of kinetic energy to the vertebral, pelvic and thoracic regions or the reflection of a trauma effective in these regions to the abdominal region.

Keywords: Blunt Abdominal Traumas, Imparement Ratings, Reflection of Traumas

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NEURORADIOLOGIC MALPRACTICE CLAIMS

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Background and aims:
As in the entire world, cases related to medical malpractice are increasing in our country and they get high compensation penalties. Today, the number of applications is rising due to the increasing number of interventional procedures and complications in the field of neuroradiology. The purpose of this article is to show potential pitfalls in the field of neuroradiology and to take preventive measures.
Methods: Neuroradiology cases, consulted to the Forensic Medicine Institute between 2006 and 2018 with the allegation of medical malpractice, will be examined.
Results: 58 cases with malpractice claims in the field of neuroradiology between 2006 and 2018 were included in our study. It was seen that in 47 of these cases, the person accused was directly the radiology doctor, and in 11 of these cases, the radiology doctor was held indirectly responsible. The other 47 cases were divided into 4 groups as bleeding, tumor, interventional procedures and other groups. In 14 of the cases, bleeding (subarachnoid, subdural, etc.) was not reported. No neuroradiological masses were seen in 9 cases. 2 cases were reported due to complications occurring in neurovascular interventional procedures. The largest group, defined as 22 cases, was named the other group. Among these, there were many reasons such as unreported fracture / pneumocephalus, reporting artifacts as real images, not noticing acute infarction, cable burn during MRI, and lack of emergency notification.
Discussion - Conclusions: Neuroradiology malpractices concern four separate interrelated specialties. Neurology, neurosurgery, radiology and emergency medicine. A mistake made by one of the doctors in these branches causes a chain of errors. Clinicians should report the patient's clinical information and, if possible, the preliminary diagnosis to the radiology unit and request re-evaluation in cases of clinical incompatibility. Radiologists should also evaluate imaging based on clinical information and report any pathology they observe.

Keywords: Forensic Medicine, Medical Malpractice, Neuroradiology

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SECONDARY VICTIMIZATION AND THE IMPORTANCE OF TRAUMA-INFORMED CARE DURING FORENSIC INVESTIGATION OF VICTIMS OF SEXUAL VIOLENCE

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Background and aims: Criminal proceedings may cause psychological harm to the victims of sexual violence, especially when they are treated insensitively by professionals in the health and justice systems. Secondary victimization can occur during the interaction between the victims and authorities, when through the behaviour, attitude and approach of the investigators towards the victims, they are once again met with the situation of feeling victimized. Criminal justice practitioners expect survivors of sexual assault to report promptly, be emotionally expressive, have the ability to recall details of the assault accurately and consistently across multiple stages of the forensic investigation. However, it can be difficult for the victim to recall what happened, especially if the discussion takes place with a professional of the same gender as the aggressor, and many people are present. Trauma-informed care is a framework that recognizes the impact of trauma and the role of health care providers in addressing it.

Methods: We performed a review of the literature to identify the factors that predispose to or induce secondary victimization in victims of sexual assault and to analyse the benefit of applying the trauma-informed care approach to reduce the risk of secondary victimization during the forensic and clinical investigation.

Results: The power differential between the health care professional and the patient, as well as an invasive physical examination, can cause victims of sexual assault to reexperience the trauma. The forensic examination and interview are invasive by nature and have high potential for revictimization. Trauma-informed care promotes patient safety and control by building patient-provider collaboration, with the goal of supporting trauma recovery, making it essential to quality care for the victims of sexual assault.

Conclusions: It is important to apply measures to reduce the risk of secondary victimization during all stages of the criminal justice process. A supportive victim-centered initial response is crucial for the physical and emotional wellbeing of the victims of sexual assault.

Keywords: Sexual Assault, Secondary Victimization, Trauma-Informed Care, Forensic Investigation, Clinical Care

FORENSIC PATHOLOGY SESSION III

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DYING AT THE GATE OF EUROPE – MIGRANT DEATHS IN CROATIA

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Background and aims: The Western Balkan route has been one of the main migratory paths into Europe, reflected the influx on the Eastern Mediterranean route which passes through countries including Serbia and Bosnia to the EU member states Hungary and Croatia. The aim of this study was to investigate the number of migrant deaths over eight-year period, from January 2015 to April 2023, the methods of identification and the cause of their death. We also analyzed age, gender and country of origin of identified migrants.

Methods: Data related to all migrant death in Croatia were collected from autopsy and police records and analyzed in SPSS.

Results: The results showed a total number of 87 migrants who died in the period from January 2015 to April 2023, with highest rate in 2022 (26,25%). Most common cause of death were submersion (54%) and hypothermia (12%). Of those 87 deceased, 54 (62%) were identified; visually, by DNA analysis or by fingerprints. The highest percentage of identified migrants were male (96%) at the age of 25 to 35 years (34%) from Algeria (22%), Morocco (14%) and Pakistan (12%).

Discussion - Conclusions: The largest number of migrants who died in Croatia lost their lives by accident due to unawareness of dangerous territory on their way. Most of them are young males who travel from economically and politically unstable countries such as Algeria, Morocco and Pakistan in search for a better life. Knowledge of threatenings can save lives, so we find it extremely important to write about it in order to avoid more of these deaths. High percentage of deceased migrants are still unidentified.

Keywords: Forensic Medicine, Migrants death, Western Balkan route, Identification

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SELF-HARM, A FORENSIC CONSTRUCT

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Introduction: Methods and reasons leading to self-injuries and auto mutilation are numerous. Almost all of them need a careful psychiatric evaluation and forensic documentation. The setting where a self-harm takes place is of particular importance while dealing with suspicious cases.

Methodology: The forensic and psychiatric literature is abundant with the notion and largely holds it as a symptom within a psychopathology, rather than considering the syndromic characteristics that self-harm might intrinsically possess. Catatonia and other mental disorders might present self-harming behavior, while the level of consciousness of the patient will deprive the behavior itself from intentionality.

The authors describe two cases with self-harm injuries, the first being a middle-age female with several superficial cuts in the abdominal region. Cuts dated in different periods with some being recent and some already cicatrized. The other case is of a young male who shot himself in the buttocks with a firearm, leaving clear soot signs that led investigator to the hypothesis of a self-inflicted gunshot at a close range.

Discussion: Of forensic interest is the borderline personality disorder, especially when the individual is under emotional distress. This is not the only personality disorder to manifest self-harm, since the schizotypal type might be interested as well, along with major depressive disorder. Impulsivity and negative affectivity are the most important backgrounds giving rise to self-harm behavior and self-injuries both of suicidal and non-suicidal outcome.

Conclusions: Whenever there is any suspicion of self-inflicted wounds, a thorough and detailed psychiatric history of the individual might be necessary. The reasons pushing individuals to self-harm behaviors are different; hence, the forensic expert needs considering all probable factors before concluding the expertise.

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AUTOPSY-BASED COMPARATIVE STUDY OF GROSS AND HISTOPATHOLOGY OF ANTEMORTEM AND POSTMORTEM BONE FRACTURE SURFACES

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Background: Fractures of bones frequently occur as a result of trauma, and it is crucial to distinguish between antemortem (AM) and post-mortem (PM) fractures when estimating the time since the injury occurred. This differentiation carries significant importance in both medical and legal contexts. Accurate identification enables the determination of injury dynamics and occasionally sheds light on the cause of death.

Aims & Objectives: The current study was done with objective to evaluate the gross morphological & histopathological characteristics of bony fracture surfaces to find out its time of occurrence viz before or after death of an individual.

Material & Method: For this study 57 bone samples of antemortem and artificially created postmortem fracture were collected from cadavers brought for medicolegal autopsies fulfilling the inclusion criteria. The gross morphological characteristics of fracture surface and histopathological features after staining with H&E stain at bony fracture edges were noted.

Results: Distinct morphological features were identified on fracture surfaces, distinguishing between antemortem and artificially induced postmortem fractures. Additionally, only antemortem fractures exhibited evidence of vital reaction on microscopic examination.

Conclusions: The findings emphasize the importance of meticulous morphological and histopathological examination of bony fracture surfaces to differentiate between antemortem fractures and artificially created postmortem artifacts. This differentiation holds significant value in forensic investigations and medico-legal cases.

Keywords: Antemortem and Post-Mortem, Fracture, Vital Reaction, Gross Morphology and Histopathology, Post Traumatic Survival Time

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SUPERIMPOSED NECK INJURIES IN A COMPLEX UNPLANNED SUICIDE

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Background and aims: Unplanned complex suicides are rare and conclusions on injury sequence may be challenging, with suspicious circumstances regarding the potential masking of foul play.

Case outline: A 76-year-old man (173cm/60kg) was found dead beneath the second-floor terrace of his house, lying upfront, with a deep cut-like wound on the anterior neck surrounded by a small pool of blood. On the room and terrace floor, there were many round- to oval droplets, and a small pool of blood. Nearby, a blood-stained knife was found. The rope with a torn noose was fixed on the terrace fence. The autopsy revealed a transversal, wide, 14 cm long laceration above the laryngeal prominence, continuous with the almost horizontal ligature mark, extending to the entire neck circumference. Autopsy revealed complete diastasis between the fourth and fifth cervical vertebrae, with spinal cord transection, but large neck blood vessels were uninjured. Cranial vault examination revealed a tear in the anterior communicant artery and scant subarachnoid hemorrhage. Signs of exsanguination and blood aspiration were absent.

Conclusion: The man probably hung with long drop, by jumping of the terrace, after an unsuccessful attempt to cut his throat. The ligature mark "impressed", superimposed to, and altered the incision(s), forming the deep neck laceration. Due to the upper spine transection without large neck blood vessels and trachea, no blood aspiration could be observed as a vital sign.

Keywords: Forensic Pathology, Complex Suicide, Hanging, Long Drop, Autopsy

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CHALLENGES IN IDENTIFICATION OF THE DECEASED

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Introduction: The identification of the deceased is a critical process that holds immense significance for legal, social, and emotional reasons. Accurate identification not only provides closure to grieving families but also serves as a vital step in criminal investigations and disaster management. However, this crucial task is often confronted with many challenges that can impede the swift and precise determination of a person's identity. In most cases, the challenge centers around the deceased's condition. When bodies are found in advanced stages of decomposition, in mass disasters, or in traumatic accidents, traditional identification methods like visual recognition become inadequate. This necessitates the utilization of advanced forensic techniques such as DNA analysis, dental records, and fingerprint matching, which require specialized expertise and access to comprehensive databases. The second challenge pertains to the lack of available antemortem data to cross-check the postmortem data. To address these challenges, advances in forensic science and biometric technologies offer promising solutions. Rapid DNA sequencing, facial recognition software, and 3D-printed replicas of skulls to aid in facial reconstruction are some examples.

Conclusion: In conclusion, identifying the deceased is a complex and multifaceted undertaking fraught with challenges. However, by harnessing advancements in technology, fostering national and international cooperation with various agencies, and improving data sharing and documentation practices, the accuracy and efficiency of identification processes can be significantly improved. Tackling these challenges is not only crucial for the proper administration of justice and disaster management but also to offer solace and closure to the families and communities affected by these tragedies.

Keywords: Identification, Autopsy, Challenges, Forensic

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POSSIBILITIES OF THE APPLICATION OF POLARIZATION MICROSCOPY FOR DETERMINING THE TIME FRAME OF THE FORMATION OF BODY DAMAGE ON THE HUMAN BODY

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Background and aims: Modern scientific sources describe numerous methods for detecting pathological changes in the biological tissues of the human body, including bodily injuries. However, in the everyday practice of forensic medical experts, first of all, micro- and macroscopic research methods are used. This is explained by the fact that most of the existing methods do not always provide the necessary objectivity and accuracy, and require high costs for special equipment. The use of laser polarization to assess bodily injuries opens up significant possibilities for forensic examinations. These methods make it possible to analyze the phenomenon of light scattering in biological tissues and, on this basis, judge the change of certain parameters and scientifically substantiate expert conclusions. That is why the aim of the study is to check the possibility of using laser polarimetry for the analysis of injuries of internal human organs in order to establish the time of their formation.
Methods: A study of injuries of human internal organs of different localization was carried out: subdural and epidural hematomas, injuries of the liver, kidneys, spleen, and muscle tissue. Experiments were carried out using standard laser installations.
Results: It was determined that as time elapsed since the injuries formation, there was a rise in the degree of optical anisotropy within the images. This phenomenon can be attributed to the polymerization processes taking place within the fibrin fibrils. Thus, the method of spectral-phase analysis provides an accurate estimation of the timeframe for the development of internal organ injuries in the range from 1 to 140 hours with an accuracy of 1-1.5 hours.
Discussion - Conclusions: The obtained data illustrate objective changes on laser polarimetric images of injuries of internal organs observed at different time intervals after death and allow to accurately determine the time of their occurrence.

Keywords: Forensic Medicine, Biological Tissues, Polarimetry, Hematoma, Injuries

FORENSIC PATHOLOGY SESSION IV

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SOCIAL MEDIA FACILITATED SEXUAL VIOLENCE

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The sending of the first e-mail in 1971 is accepted as the beginning of "social media" history. Even though the biggest aim of the Internet is the fast sharing of economic data, social media users have used the biggest portion of the Internet. The Internet has given birth to a quirky range of modern addictions and maladies such as ego surfing, blog streaking, Google-stalking, cyberchondria photo-lurking wikipedialism etc. The New Scientist Journal says "cyber bullying" is another criminological entity that professionals face more and more each day by inconceivable increase usage of social media.

Sexual abuse by people who were acquainted by means of social media is very frequent nowadays. This paper presents the cases that were admitted to Mersin University Medical Faculty at the Department of Forensic Medicine by the complaint of sexual abuse by the those who were acquainted by means of social media. Case characteristics including age, sex, year, type of the social media, time, place, physical and genital examination findings and psychiatric outcomes are presented. Common features of social media related sexual abuse cases are highlighted.

95.8% of the 71 cases were female, average age was 15.9. Mental Retardation were diagnosed at 14.1%. One of third cases were member of a broken family. All abusers were male and most of them were between 14-32 years of age. Instagram was the most used platform for online dating. Most common threatening method was threatening by naked images of victims. WhatsApp was the most common platform for online sexual abuse. Most of the victims were sexually assaulted within 3 months later from online dating. Nearly all of them were penetrant sexual assault. PTSD and suicidal tendency were most common psychiatric diagnosed of the victims.

Educational programs to students and families which focused on safe internet usage will reduce the risk of online sexual abuse.

Keywords: Online, Sexual Abuse, Social Media, Internet

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COMPILATION OF DIFFERENT 3D SCANNING AND VISUALISATION METHODS FOR RECONSTRUCTION OF TRAUMA MECHANISM

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Introduction: In forensic medicine, we often face the challenging task of comparing potential weapons with acquired injuries and determining whether it is possible for the injury to have been caused by the weapon. This cannot always be achieved in an entirely objective manner, as information may be provided to us at different stages, and direct physical comparison may not always be feasible. The use of modern 3D scanning technologies, as well as the results of diagnostic imaging methods, can be of significant importance. Calculating physical parameters contributes to more objective results.

Methods: We present a case of a man who was found by a friend in a helpless state with severe head trauma in the forest. He was urgently admitted to the hospital and received treatment. A computed tomography scan of the head was performed. During the scene investigation, a fallen tree branch, likely responsible for the injury, was found. The expertise needs to establish whether the injury could have been caused by this specific physical evidence. We utilized 3D surface hybrid scanning (laser and photogrammetric), the results from the CT scan, and compared and calculated the force required for the injury.

Results: After exporting the objects in an appropriate 3D format and comparing them using specialized software, geometric congruence is established. Physical calculations confirm that the force of the fallen branch is within the parameters of cranio-cerebral trauma, as indicated by reference data.

Conclusion: By employing modern 3D visualization methods with geometric precision, the mechanism of the injury is elucidated, further corroborated by physical methods. Good visualization is highly beneficial for presentation in court as a convincing objective tool that complements conventional methods in forensic medicine.

Keywords: CT-Scan, 3D Surface Scanning, Crime Scene Investigation, Forensic Medicine

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EXAMINATION OF THE CRIME SCENE – NECESSITY OF THE FORENSIC MEDICAL EXAMINATION OF THE CRIME SCENE

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Introduction/Background: Crime scene examination in the most European countries is covered by the police unit' s specialized only crime scene evidence collection.
Only a few countries in Europe have a forensic medicine system for conducting forensic examinations of the crime scene.
Materials and Methods: The number of forensic medical examination at the crime scene varies between years. During the year 2021, out of 45 autopsy reports, 26 of them are also accompanied by forensic investigation reports of the crime scene examinations.
During the year 2022, out of 54 autopsy reports, 19 of them are also accompanied by forensic investigation reports of the crime scene examinations.
During the year 2023 (August 2023), out of 52 autopsy reports, 31 of them are also accompanied by forensic investigation reports of the crime scene examinations.
Discussion: Medic-legal examination of the crime scene in cases of murders, suicides or violent deaths in general is necessary.
In particular, the identification of early corpse stains is of extraordinary forensic importance in the sense of determining the time of death.
Conclusion: Professional forensic medical description of various forensic evidence in determining the time of death, such as early corpse stains, open or closed environment, physical form of deceased, clothes and many other factors can only be done by forensic investigators or the forensic pathologists themselves.

Keywords: Crime Scene Examination, Forensic Investigators, Forensic Pathologists

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SPECTRAL-SELECTIVE AUTOFLUORESCENCE MICROSCOPY OF THE VITREOUS BODY AS A RELIABLE METHOD FOR DETERMINING THE TIME SINCE DEATH

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Background and aims: Estimating the time since death is a very important aspect in forensic science and practice. Currently, numerous methods have been developed for this purpose, and ongoing scientific research in this area involves contributions from researchers worldwide. However, most of the existing methods are not accurate enough and have a number of disadvantages. Therefore, further search and development of new diagnostic methods and criteria for establishing the time since death is necessary. Thus, the aim of our work is to develop an algorithm for determining the time since death by using spectral-selective autofluorescence microscopy of the vitreous body of the human eye.

Methods: A study of the native layers of the vitreous body, which were selected from 120 corpses with a previously known time since death ranging from 1 to 48 hours, was conducted. Exclusion criteria were: presence of craniocerebral injury and eyeball injury, endogenous and exogenous intoxications. Obtaining microscopic images of autofluorescence in the blue and thick-green parts of the electromagnetic spectrum was carried out using a standard laser polarimeter and light filters.

Results: The use of autofluorescence microscopy makes it possible to track the dynamics of the transformation of the polarization manifestations of postmortem changes in the polycrystalline structure of the layers of the human vitreous body: as the time since death increases, the level of optical anisotropy decreases - the collagen network becomes disordered and the concentration of protein complexes decreases.

Discussion - Conclusions: The proposed method allows determining the time since death with an accuracy of 25 minutes at an interval of up to 36 hours. It is promising to use the analytical capabilities of other laser polarimetric methods for diagnosing the time since death, as well as taking into account the influence of some environmental factors.

Keywords: Forensic Medicine, Time Since Death, Vitreous Body, Diagnostics.

GENERAL SESSION

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E-SIGNATURES IN FORENSIC DOCUMENT EXAMINATIONS

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Background and aims: Signatures signed in a digital environment through electronic devices, such as tablets, are referred to as online, dynamic, or electronic signatures in the literature. The concept of electronic signature originated decades ago but is still not commonly used due to the lack of reliable infrastructure. While forging a signature by hand can be difficult, in a digital environment, it is easier to copy the original signature and paste it into another document. It is a problem that remains relevant in the forensic document examination field regarding the determination of ownership.

Methods: As a part of the 19th Interpol International Forensic Science Managers Symposium, an elaborate review of forensic document examination literature from 2016 to 2019 was published. Under the sub-heading "Online/dynamic/electronic signatures" a total of ten research papers were mentioned. So, in this study, the ten studies INTERPOL review included were examined in detail. Afterward, more recent studies that were conducted after 2019 were evaluated, and the current state of Turkey was discussed.

Results: Current literature about dynamic signatures covers the topics of the ability to distinguish authentic and simulated dynamic signatures; various kinematic handwriting characteristics such as pen pressure, stroke rate, and flatness; reproducibility, internal variability, and the formation of accurately simulated features. Also, in addition to the signature graphic, using simultaneous capture of the signing process with spectrogram analysis as a new parameter and the potential for automatic signature identification by performing statistical analysis on pen pressure data are being considered.

Discussion - Conclusions: The new parameters introduced by dynamic signatures into forensics are kinematic parameters. This can be seen as a challenge. However, research on these parameters, together with the use of classical parameters, can actually reinforce the accuracy of forensic document examinations.

Keywords: Forensic Sciences, Forensic Document Examinations, Questioned Documents, E-Signatures

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CONTINUED DISCUSSION ON CAN WE AGREE ON TERMINOLOGY BEYOND HANDWRITING?

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At this point in time, there seems to be a large variation in the manner document examiner express their conclusions. It has been many years since the first heated and spirited debates started on the terminology to be used in reports by document examiners. This evolved into the ASTM[1] standard and SWGDOC[2] standards continuing the debates and evolution of the terminology. The terminology as it relates to certainty can also be seen in expressing opinions and reporting conclusions in proficiency testing. While there are of course drawbacks at times, the use of standards to explain conclusions is generally regarded in the field as a helpful guideline. In the ASTM and SWGDOC standards number 3.5, it is said that the terminology can be applied to other areas of document examination not just handwriting examinations. The questions for today are; "Should we do that?", Do we do that?", and "How close are we to being on the same page in practical cases and applications?" This paper will be an interactive discussion-based presentation with made up case examples, but comparable to real cases and findings that are commonly seen in document examination. The point of the presentation is NOT to say that someone's opinion got more votes than another, but instead to evaluate the similarities and differences in expressing opinions in document examination cases. These case examples will include the evaluation/identification photocopier damage, the use of multiple ink formulations to create an entry, entries, or an entire document, the evaluation of impression evidence, and the evaluation of other similar examinations.
The feedback and discussion of the examples discussed in this paper can provide guidance if the standards can be used in some or all the areas of document examination and secondly, if there is a productive path forward to begin to arrive at some parameters for the implementation and use of possible future standards.

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EVALUATION OF INDIVIDUAL WRITING CHARACTERISTICS IN TERMS OF TEACHING PROFESSION

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Background and aims: Forensic Sciences is an important branch of science that helps us take all the necessary steps to achieve justice. Questioned document analysis allows to examine many different written and/or printed documents. Handwriting comparisons, which is one of the important study areas of questioned document analysis, helps us to establish the relationship between the document and the individuals who wrote the document. The personal characteristics of the text make certain characters or some details in the text special and distinctive.

Methods: Differences and similarities of writing characteristics in terms of teaching profession were studied. The study was carried out with a total of 50 teachers in Istanbul and working in 10 different branches. Same text was written to each teacher using a standard A4 paper and a ballpoint pen, and the teachers' reflection of the letters on the paper, the distances of the gaps, the size and position of the letters, the distances between the words, and the inclination of the texts were examined.

Results: Change of writing characteristics depending on the teaching profession and branch is discussed. In addition, when the age distribution of the teachers is made, can be said that the teachers, a large group of whom are members of Generation Y, are students of similar education periods. This situation helps to conclude that the outcomes of the education-teaching curricula maintained and implemented throughout the country are similar and that the initial points that teachers learn about writing are close to each other.

Discussion - Conclusions: When the teachers were separated and examined according to their branches, some similarities were found among themselves. Although there are similarities according to the branches, a generalization that can be classified has not been possible. Although each individual's writing characteristics are related to the same field, it may vary.

Keywords: Forensic Sciences, Questioned Documents, Writing Characteristic, Teaching Profession

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MASSIVE TAKING OF COMPARATIVE MATERIAL FOR IDENTIFICATION OF PERPETRATORS. LEGAL, FORENSIC SCIENCE AND SOCIETY ISSUES

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Background and aims: Control (comparative) samples taken from suspect or other person are necessary for identification when traces were revealed at the crime scene. If the perpetrator is not indicated by victim or witnesses, one of the interesting solutions is to take massively control samples from persons whose exhibits similar features as perpetrator. Many cases confirm that this procedure can be effective. Nevertheless, mass tests are focused mainly on third parties (non-offenders) and it is a controversial from the point of view of privacy protection and civil liberties. The aim of the research was to check level of social permission for mass screenings and to set the optimal procedure.

Methods and results: The first part of the research was focused on level of social permission for mass screenings. 800 persons in Poland were surveyed within the study – 385 persons from general public and 415 law students. About 75% of general public and 65% of law students admitted that they will give a consent for taking comparative material if they were asked for it (responses in surveyed groups were statistically different; $p < 0.01$). All surveyed groups mostly agreed for submitting fingerprints (about 95%) and mouth swabs (80%).

Additionally comparative legal research of was carried out for selected European countries and common law countries. Research shows that in many countries mass screenings are voluntary (Germany, Netherlands, Great Britain) or are under the suspect sampling regime (USA, New Zealand). In some countries massive collection can be compulsory according to code of penal procedure (Poland, Italy, Finland, Sweden, Denmark).

Conclusions: Mass screenings for detection of perpetrator can be assessed as accepted procedure by society. Due to implications on civil liberties mass screenings can be allowed only on court order and for serious crimes (i.e., against human live or health or sexual assault).

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Keywords: Mass Screening, Comparative Sample, Dragnet

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THE DEATH PENALTY IN ROMANIA - HISTORICAL COURSE

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Capital punishment represents the deprivation of life of a person who was guilty of very serious crimes, and whose conviction remained final.

As of 2017, 142 countries have abolished the death penalty in law or in practice, leaving 56 countries that still use capital punishment.

The communist regime established in 1945 in Bucharest tried to abolish all forms of anti-communist resistance, thus modifying the criminal laws and reinstating capital punishment. The death penalty was reintroduced into the criminal legislation in Romania through a series of laws and decrees, the most important of which are Law no. 50 of January 21, 1945 and Law no. 312 of April 24, 1945. During the Second World War, there were special decrees issued by Marshal Antonescu's regime to reintroduce this punishment, as well as during the time of Charles II. Until this moment, capital punishment had been abolished in Romania since the time of Alexandru Ioan Cuza and the only ones who could fall under its influence were traitorous soldiers (deserters). Thus, Romania was the first European country to abolish this punishment, in 1865.

After 1989, the death penalty was abolished by Decree-Law no. 6 of January 7, 1990 and was replaced by life imprisonment. The last persons sentenced to death and executed were the Ceaușescu' s (December 25, 1989).

The present work aims to carry out a review of the historical course of capital punishment in Romania, in close relation with political changes and with the need to adapt to international requirements and at the same time to analyze the ethical, social and even philosophical aspects of what this punishment means.

Keywords: Death Penalty, Life Imprisonment, Communist Regime, Legislation

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EU AS GLOBAL SECURITY ACTOR

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Background and aims: "A safe Europe and a stable world" is a motto used by European External Action Service' s Security, Defense and Crisis Response to emphasize the leading stance of the European Union in the field of security, within the Europe itself and at the global arena. European External Action Service (EEAS) is engaged within the geographical EU and the world to prevent and resolve conflicts, to support resilient democracies, to promote human rights and sustainable development, to combat changes of climate, and to contribute to global order. Moreover, EU' s global position was strengthened with its well-established multilateral relations with relevant global security actors such as the UN and NATO. Regardless of the above-mentioned position of the EU and its relevant stakeholders, international or global security is still considered as complex and fragile and requires serious if not immediate actions to maintain the global order.

Methods: To satisfy the objectives of the paper, a qualitative research method was used.

Results: To clearly explain EU' s idea behind being a global security actor, this conference paper is designed to analyze the position of the EU at a global stage and security area in three parts. First part talks about the European External Action Service (EEAS) while focusing mainly on EU Security, defense and crisis response and its multilateral relations. Second part talks about all strategies EU strategies and relevant legal documents supporting EU' s role for a safer Europe and stable world. The last part talks about Common Security and Defense Policy (CSDP)' s missions and EU's toolbox for global security and peace.

Discussion - Conclusions: This paper in its conclusion is designed to emphasize the position of the EU as global security actor based on created strategies, multilateral relations, toolboxes, and actions undertaken within the EU and in the world.

Keywords: European External Action Service (EEAS), EU Security, Defense and Crisis Response, Common Security and Defense Policy (CSDP), EU toolbox

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ONLINE OPEN BOOK EXAMINATION AS A TOOL FOR REVISION IN FORENSIC MEDICINE

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Background and Aim: Students find it difficult to retain knowledge given during lectures. Tests should be given frequently to increase retention of information. An open book examination is one where the students can give answers using their textbooks. The aim of this study was to evaluate the effectiveness of 'Exam Derived Learning (EDL)' in the form of an 'Online Open Book Examination (OOBE)' as a revision tool in the subject of Forensic Medicine among 2nd year MBBS students at AIIMS, Hyderabad.

Methods: An online open book examination was conducted in the form of pre-tested and validated MCQs after the regular interactive lecture classes on the topic of drowning but before the revision exercise on the same. Feedback from the students was taken on an online open book examination via pretested and validated Likert-scale-type perceptions. The median score of the online open book test was calculated. The perceptions of students' towards online open book examination were assessed via the median score.

Results: The median score of the online open book test was 9 out of 10, 34.7% of the students secured full marks, and 97.4% of the students secured more than 50% of the score. Students gave favorable feedback for the online open book examination.

Conclusion: Open-book tests must be practiced as one of the assessment modules in medical education to enhance retention of knowledge and encourage critical thinking.

Keywords: Online Open Book Examination, OOBE, Forensic Medicine, Revision Tool

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DEFENSIVE MEDICINE - A DREADED CONSEQUENCE OF MALPRACTICE CLAIMS IN ROMANIA

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Introduction. Malpractice claims are an increasingly common reality in medical practice worldwide. The consequences of the high number of complaints extend on several levels, one of the most important being the practice of medicine in a defensive manner. The aim of our research was to identify the defensive practices and their extent among doctors in Romania.
Material and method. We performed a qualitative study, based on semi-structured interviews, in which nine doctors who were directly involved in malpractice claims participated, and a quantitative study, based on a questionnaire, addressed to doctors in Romania, regardless of whether they were complained about or not, in which 1684 doctors participated.
Results. The participants signaled the transition to defensive medicine as a result of the malpractice complaints: either because they were directly involved in the complaints, or because although they were not directly involved in the complaints they observed their consequences on colleagues and wish to avoid a complaint directed at them. Among the doctors who participated in the questionnaire-based study and who were themselves complained about (N=271), 45% avoid high-risk procedures, 54.6% recommend un- necessary tests, 64.6% recommend more consultations, 25.1% avoid high-risk procedures, 18.1% recommend more hospitalizations, 8.9% considered changing specialty and 5.5% recommend more drugs. Among the participants who have not been complained about and do not know a colleague who has been complained about (N=529), 42.2% recommend more tests and 52.7% recommend more consultations. The defensive practices adopted by the doctors who participated in the interviews were similar: requesting more consultations and tests, avoiding complex surgical interventions, avoiding the involvement of resident doctors in surgical interventions, giving up the medical profession.
Conclusions. Practicing defensive medicine out of fear of malpractice claims affects the entire medical community, extending to the medical system and society as a whole, through additional costs, patient endangerment, and loss of confidence in the clinical judgment of physicians.

Keywords: Malpractice Claims, Defensive Medicine, Doctors, Romania

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DISCOURSE IN NATIONALIST-SEPARATIST TERRORISM IN THE CONTEXT OF MORAL EXCLUSION AND FACES OF LEGITIMATION THEORIES: THE SAMPLE OF PKK

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Background and aims: Nationalist-separatist terrorism is fundamentally closely related to ethnic discrimination and national liberation-motivated conflicts. Ultimately, the goal of nationalist-separatist terrorism is territorial change or acquisition. It is well known that numerous separatist groups around the world have gained prominence when they spark armed conflict within a state's borders or in the interstate system. Organizations and movements may employ a variety of tactics to legitimize these conflicts and recruit members and supporters. In this context, propaganda and manifesto discourses are the main methods used to reach the masses.

Methods: Two theories that examine the groups that implement these methods through acts of violence in many different dimensions and interpret the motivation and dynamics of the actions considering various parameters are used in this study. Moral exclusion theory is the perception of individuals or groups as outside the boundary in which moral values, rules, and considerations of fairness apply. Faces of Legitimation Theory, on the other hand, studies discourses legitimating political violence from a social psychological, and sociological perspective

Results: The discourses created by PKK (Partiya Karkerên Kurdistanê/Kurdistan Workers' Party) to justify separatist activities were interpreted with the help of these two theories within the scope of this study.

Discussion - Conclusions: As a result, in parallel with the results of the studies conducted on similarly motivated organizations (ETA and IRA), it was observed that the PKK preferred discourses in which the Kurdish people were historically exposed to oppression and colonialism, that the Kurds have the right to self-determination and that they explain the legitimacy of the armed struggle.

Keywords: Terrorism, Violence, Faces of Legitimation, Moral Exclusion, PKK

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"INSIDE THE ICU: UNDERSTANDING NURSES' ATTITUDES AND FACTORS IMPACTING MEDICAL ERRORS

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Background and aims: Medical errors occur more frequently in intensive care units (ICU) due to complex structure. Although the causes of errors are reported in many studies, there is a need to be more knowledge of the medical errors attitudes and barriers to reporting. The aim of this study was to determine the medical error attitudes of intensive care nurses and affecting factors and barriers for not reporting medical errors in Turkish ICUs.
Methods: This was a cross-sectional, correlational study. The sample size was calculated using a G-Power program. 228 participants participated in the study. Data collection was conducted via an online data collection form. The form was divided into two sections: the first gathered information about participant demographics and medical error experiences, while the second featured the Medical Error Attitude Scale.
Results: Medical error attitudes of nurses (3.74±0.31) were positive. Half of the participants (49.6%) made a medical error, 66.4% of nurses did not report the medical error. 71.5% of the nurses witnessed that their colleagues made a medical error. Age, position, willingness to be a nurse and ICU nurse, job satisfaction status, attending to training or an education program regarding medical error, experiencing a medical error not reported to the charge nurse, reasons for not reporting medical error, reasons for not reporting medical error and causes of medical errors were found to be the most affecting variables on the medical error attitudes ($p<0.05$).
Discussion - Conclusions: Results show that the prevalence of medical error was high, but the general medical error attitude was positive. However, some personal and systematic factors affected the awareness of the importance of medical error and error reporting. The results emphasize the importance of undergraduate education, training nurses in organizational patient safety culture, and promoting an internal disclosure system of all adverse events.

Keywords: Medical Error, Intensive Care, Nurse, Attitudes, Incident Reporting

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THE EXTRAJUDICIAL PROCEDURE FOR RESOLVING MALPRACTICE COMPLAINTS: A VALID ALTERNATIVE IN ROMANIA?

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Background and aims: In Romania, malpractice complaints can be resolved both judicially- in court, and extrajudicially- by commissions established at the Public Health Directorates. The benefits of resolving these complaints out of court are well recognized around the world: faster, more efficient, less expensive, encourages the disclosure of mistakes, significantly reduced impact for the personal and professional life of the doctor. The aim of this paper is twofold: 1) to assess the efficiency of the procedure for resolving malpractice complaints extrajudicially in Romania and 2) to assess the difficulties associated with the judicial procedure.

Methods: For the first aim we analyzed the complaints submitted between 2006 and 2019 to the Public Health Directorates from the Moldova region of Romania (8 counties, 153 complaints), while for the second aim we analyzed nine interviews with doctors directly involved in complaints and a questionnaire applied on a national scale, to which 1684 doctors answered

Results: The analysis of the complaints showed that malpractice was confirmed in 5.2% of cases, denied in 25.5%, while 24.2% of the cases were classified for reasons such as non-payment of the expertise fee or lack of appropriate documentation. Both the analysis of the interviews and the questionnaires showed that the judicial procedure has a negative impact both personally and professionally on the complained doctors (rest disorders, depression, anxiety, cardiovascular disorders, defensive practice) significantly more than investigation out of court. Moreover, participants indicated other difficulties in solving cases like gaps in the legal and health systems and the inefficiency of malpractice insurance due to numerous exclusion clauses.

Discussion - Conclusions: Our study showed, on the one hand, the inefficiency of the malpractice insurance policies and of the current procedure for resolving malpractice complaints out of court- with less than a third being resolved by confirming or denying the malpractice. On the other hand, they demonstrate the strong negative impact of the judicial procedure on doctors, with repercussions on the medical system and society in general. These results thus emphasize the need to improve the procedure for resolving malpractice complaints out of court in Romania.

Keywords: Malpractice Complaints, Extrajudicial Procedure, Romania, Impact, Doctors

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THE IMPORTANCE OF DYE AND PIGMENT ANALYSIS IN DETECTION OF ARTWORK FORGERY

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Background and aims: The art world is a fascinating field where creativity knows no boundaries. It is a field where artists express their thoughts, feelings and visions through various types of forms of mediums. On the other hand, as the value of art continues to rise so does the extensity of forgery. Art forgery is a widespread problem around the world, costing collectors millions of dollars every year. To fight this problem, forensic science plays an important role in the authentication of artworks. Among the subjective examinations with a high margin of error used in the identification of artworks, paint and pigment analysis has emerged as a powerful tool in the detection of forgery.

Methods: A comprehensive scientific literature review was carried out to highlight the importance of dye and pigment analysis in art forgery. Scientific studies were obtained by searching Google Scholar, CORE and ResearchGate databases. The search was limited to studies published between 2013 and 2023. The search was conducted using the keywords 'artwork forgery' ' dye and pigment analysis' and 'forensic sciences' .

Results: As a result of the literature review it has been found that spectroscopic methos such as Raman Spectroscopy, X-ray Spectroscopy etc. that cause minimum damage to the artwork are generally preferred in the detection of art forgery. Other methods used in the analysis of dyes and pigments in the detection of artwork forgery are High Pressure Liquid Chromatography (HPLC), electrochemical methods and microscopic analyses. In the literature review, it was determined that there were more studies on the analysis of pigments such as Prussian Blue, Phtalocyanine Blue, Carbon Black, Anatase, Chrome Yellow, Cinnabar which are found in black, yellow, red and blue colour paints frequently used by artists in their paintings in the past. With their studies, researchers have contributed to the literature in preventing the crime of art forgery by developing methods that allow molecular and elemental analysis of dyes and pigments in artworks whose authenticity is investigated.

Discussion - Conclusions: As a result, the detection of art forgery plays an important role in the protection of cultural heritage, the punishment of criminals and the prevention of the crime of art forgery. For this reason, it is very important to analyse dyes and pigments with analytical methods rather than subjective methods such as interpretation of styles and technique in painting for the detection of art forgery and to increase the number of experts in this field.

Keywords: Artwork Forgery, Forensic Science, Dye and Pigment Analysis

POSTER SESSION

CLINICAL FORENSIC MEDICINE

- P01 -

A FORENSIC PERSPECTIVE ON THE FATAL VIOLENCE AGAINST WOMEN

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Background and aims: Preventing the fatal violence against woman is first of all a matter mainly related to the involvement and perception of community level. The identification of the risk factors and the development of the social assistance system could play an important role. The objective of our study was to provide autopsy-based and judicial-proven information on the phenomena of violence against women in a representative area of Romania.

Methods: Postmortem forensic pathology reports for the autopsies regarding fatal violence against women, recorded in the Legal Medicine Service of Galati, were reviewed over a 5-year period. Moreover, data provided by the emergency services of the Emergency Hospital of Galati regarding the victim of domestic violence together with forensic examination reports of the living victims were examined.

Results: According to local prosecutor's office data and the recording of the Forensic department of Emergency Hospital of Galati, Romania, 2018 – August 2022, 25 crimes against women and 37 attempted murders against women were reported.

Discussion - Conclusions: The typical Romanian victim showed to be an elderly woman, with poor material condition or financially dependent to the partner, aggressed by a family member or a husband/partner in a long-term relationship with a history of previous domestic violence. The crimes were no premeditated murders, but committed in an altered state of consciousness due to the alcohol abuse or psychotic disorders. The aggressor used brute force and handy objects. The prevalence of history of previous injuries among victims indicates that early risk identification of fatal outcomes**.** The study revealed Romanian society profile with an insufficient social support network for women, insufficient community resources, lack of coordination between community resources, attitudes accepting of violence against women, lenient legislation.

Keywords: Forensic Medicine, Homicide, Interpersonal Violence, Alcohol, Risk Factors

- P02 -

INJURY PATTERN IN INTIMATE PARTNER SEXUAL VIOLENCE

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Introduction: According to WHO (World Health Organization), Intimate partner violence is "any behavior within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse, and controlling behavior." In the context of intimate partner violence, sexual abuse refers to physically forcing a partner to have sexual intercourse who did not want it, forcing a partner to do something that they found degrading or humiliating, harming them during sex, or causing them to have sex without protection.

Methods: A retrospective study of all medico-legal reports of victims of intimate partner violence was conducted for ten years at the Clinic of Forensic Medicine and Deontology in Sofia. Special attention was pointed toward women reporting sexual violence by a former or current partner.

Results: For the studied period, 2623 forensic medical examinations were cases of victims of intimate partner violence. Out of them, only 24 were such with information concerning the perpetration of sexual violence. The following information was obtained – age of the victim; marital status (ex or current spouse, cohabitant or intimate partner); type of injuries and their localization over the victim' s body and time of the assault.

Conclusion: Intimate partner sexual violence is an underreported crime, limiting the literature specific to this type of violence. Women sexually assaulted by partners are less likely to seek medical care or desire preventive contraception and protection against sexually transmitted diseases.

Our research supports past findings that intimate partner sexual violence co-occurs with intimate partner violence. The results provide original and substantial material to better understand sexual violence between intimate partners. Forensic units worldwide have a central role in collecting and publishing such cases to fill the missing gap in the literature.

Keywords: Intimate Partner Violence, Sexual Violence, Sexual Abuse, Injury Pattern

- P03 -

EVALUATION OF TRAUMATIC INJURIES SUFFERED AS A RESULT OF ROAD ACCIDENTS IN ROMANIA THROUGH THE INSURANCE MEDICINE EVALUATION REPORT

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Background and aims: By Order no. 1 of August 22, 2022 issued by the Financial Supervisory Authority (ASF) together with the Ministry of Health approved the trauma scoring in case of injury to the bodily integrity or health of persons following vehicle accidents in order to obtain amicable compensation from insurance companies in Romania through the insurance medicine evaluation report.

Methods: The trauma score is a detailed technical analysis of the sufferings of the victim of the road accident and is materialized through the document called the trauma score report, a document that is drawn up by an expert evaluator and is based on a scale attached to the issued order.

Results: Unlike the days of medical care that are granted depending on the most serious traumatic injury suffered by the victim, the evaluation report for insurance medicine sums up the trauma injuries and gives the corresponding score for each individual injury. All the values will be added together and a total score called the trauma score.

Conclusions: The trauma points do not influence the criminal aspects of the file regarding the traffic accident because they only concern the civil aspect, of the compensations that can be obtained. Instead, the days of medical care in the medico-legal certificate/expertise report have a decisive role in establishing the criminal nature of the act, in the sense that a bodily injury due to negligence can be considered a crime depending on the number of days of medical care.

Keywords: Traumatic Injuries, Road Accidents, Clinical Forensic Medicine, Trauma Score

- P04 -

VERTEBRA FRACTURES AS A ROAD TRAFFIC INJURY

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Background and aims: Road traffic injuries caused by motor vehicle crashes are one of the major causes of vertebral fractures. Vertebral fractures and related conditions also come to the fore as a cause of serious morbidity and mortality after road traffic injuries. In this presentation, it is aimed to retrospectively review the vertebral fracture cases evaluated in a tertiary forensic medicine clinic.

Methods: Age, gender, information about the event and injury were compiled from patient files and reports of individuals with vertebral fractures who applied to the Forensic Medicine Clinic of our university between 01/01/2022 and 31/12/2022. Simple frequency analysis of the data, Chi-square test for categorical data and Kruskal-Wallis test for numerical data were performed assuming p=0.05, and the results were discussed in the light of literature findings.

Results: A total of 75 patients were selected according to our inclusion criteria from 986 patients admitted to our center between the specified dates. The mean age of the 75 patients with vertebral fractures was 41.65 years (SD=16.11 years). 73 (97.3%) of them were admitted due to injuries related to a road traffic collision. Of them, 53 (70.7%) were male and 22 (22.7%) were female. All of them, except for 2 cases, applied for the determination of the disability rate due to a compensation case. The most common fracture localization was the lumbar region (n=40, 53.33%). While the number of cases with fractures in the vertebral body was 51 (68%), appendage fractures were detected in 41 (54.67%) cases. A significant difference was found between the disability rates of the cases with more compression in the corpus and those with less compression. ($p<0.01$).

Discussion - Conclusions: Road traffic injuries still seem to be a major cause of vertebral fractures and can cause serious morbidity in victims. The severity of corpus compression can be indicative for morbidities that cause disability in people.

Keywords: Forensic Medicine, Clinical Forensic Medicine, Vertebra Fractures, Road Traffic Injuries, Disability

- P05 -

FAMILICIDE-DOUBLE SUICIDE: CASE PRESENTATION

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Homicide-suicide and dyadic death refer to an incident where a homicide is committed, followed by the suicide of the perpetrator almost immediately or soon after the homicide. Familicide-suicide can be defined as the killing of one' s current or former spouse or one intimate partner plus or minus one or more children followed immediately or very soon by suicide by the homicidal offender. Use of firearms is a common method of homicide in developed countries. Uses of knives, blunt objects, strangulation, and poisoning are other methods frequently employed by the perpetrator. Hanging as a method of suicide in familicide-suicide is infrequently reported in literature, and double suicide (hanging together with burns) is not reported in literature. We report a particular case, where the perpetrator, after the homicide committed, set himself on fire and hanged himself at the same time. The paper aims to present the case of a 59-year-old man, who, after stabbing his wife, throw gasoline over his body, put a noose around his neck, set himself on fire and then hanged himself.

Suicide is the act of intentionally causing one' s own death. Mental, physical disorders and substance abuse are risk factors. Some suicides are impulsive acts due to stress, relationship problems or harassment and bullying. The most adopted method of suicide varies from country to country and is partly related to the availability of effective means. Common methods of suicide include hanging, pesticide poisoning and firearms. Actually, suicide is the 10th leading cause of death worldwide.

- P06 -

CASE OF ROAD TRAFFIC ACCIDENT AND DEATH DUE TO MEDICAL MALPRACTICE

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Background and aims: Indisputably, road traffic accidents are one of the main reasons for death worldwide because of the severe traumatic injuries often caused, especially when driving at great speed. Frequently, there is a combined body trauma that involves more than one organ or system. That is why qualitative and well-timed medical assistance is fundamentally important for favorable outcomes. This case is a convenient example of medical malpractice due to wrongful interpretations and subsequent improper behaviors by the medical staff, following the death of the patient.

Methods: A 16-year-old woman is involved in a car accident and rushed into the emergency room. Immediate diagnostic and treatment measures were undertaken – venous sources were secured, blood and urine samples were taken for laboratory tests, primary surgical treatment of the wounds was performed, as well as imaging studies – computed tomography and radiography. The laboratory tests indicate acute blood loss (low hemoglobin, erythrocyte, and hematocrit values) but the CT interpretation does not demonstrate any hemorrhages in the abdomen cavity. A transfusion of erythrocyte mass and plasma substitute products was undertaken. Due to hemodynamic changes, the patient was intubated and cardio-pulmonary resuscitation was performed, with no effect, and a fatal outcome was registered.

Results: An autopsy was performed and the following severe traumatic injuries were determined: contusion and rupture of the spleen, partial rupture of the mesenterium of the colon, fracture of the right pubis, fracture of the sacrum with rupture of the peritoneum, rupture of the left common iliac vein and left external iliac vein with massive hemorrage in the abdomen cavity.

Discussion - Conclusions: With an autopsy performed, the immediate cause of death was determined as a traumatic and hemorrhagic shock as a complication of severe body trauma including head, chest, abdomen, pelvis, and upper and lower limbs. The CT was wrongfully interpreted by the radiologist and the massive hemorrhage was not diagnosed. No measures were taken to detect the source of bleeding as the laboratory tests indicated blood loss. No explorative laparotomy was undertaken. Every combined body trauma refers to a life-threatening condition that requires emergency medical attention until it is established whether internal organs and blood vessels are affected. It is a significant mistake to misdiagnose acute bleeding and rupture of organs or blood vessels and definitely leads to unfavorable outcomes.

Keywords: Clinical Forensic Medicine, Forensic Sciences, Medical Malpractice, Road Traffic Accident

CRIMINALISTICS

- P07 -

EVALUATION OF DIFFERENT BRANDS AND DIFFERENT COLOURS OF NAIL POLISHES IN TERMS OF FORENSIC SCIENCES

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Background and aims: In cases of sexual assault, murder, or other violence, nail polish/nail polish transfers evidence that can be commonly found at the crime scene. Chemical analysis of nail polish-covered nail fragments or other nail polish-contaminated items can offer useful information to help reconstruct a crime. The components of nail polishes vary according to their brands, colours, and usage purposes. In this context, nail polishes obtained in different colours from 3 different brands will be studied with various analysis methods, comparative results will be obtained, and a mini-reference library will be created. The fact that studies on nail polish have not been studied in the field of forensic sciences in Turkey highlights the importance of this study.

Methods: Different brands and colours of nail polishes to be used for analysis in the study will be obtained from stores or online shopping sites. First, the most preferred products will be filtered, and product research will be carried out. Samples will be purchased from 3 different brands in various colours, including "red, black, and blue", and samples will be prepared for TLC and UV-Vis analysis methods. The pH values of all nail polish samples obtained will also be recorded to create a parameter record and a ThermoFisher Scientific-Benchtop Ph Meter will be used.

For TLC (Thin Layer Chromatography), a mixture of butyl alcohol, ethyl alcohol, water and glacial acetic acid and acetone, ether, methylene dichloride, and cyclohexane mixture will be used for sample preparation from nail polishes. All nail polish samples to be studied with Thin Layer Chromatography will then be examined in Camag UV Cabinet 4 under two different wavelengths (254-366).

Results: As a result of the analysis, it is possible to separate the nail polishes. This study is a kind of preliminary study of the main project. All the results will be shared at the congress.

Discussion - Conclusions: More colours and products of the different brands will be used in further studies to create a database.

Keywords: Forensic Chemistry, TLC, Forensic Sciences, Crime Scene, Nail Polish

- P08 -

THE IMPORTANCE OF FORENSIC TEXTILE EVIDENCE IN FORENSIC SCIENCE

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Background and aims: Forensic scientists analyze the evidence recovered from the crime scene in forensic laboratories. Textile surfaces and accessories are among the physical evidence frequently encountered at the crime scene, as they take place in a very large part of daily life. Starting with fibers to the final product in the textile hierarchy, various textile materials can be encountered at the crime scene, where these fibers are spun into yarns and yarns are spun into fabrics. Various forensic examinations of this evidence can help solve forensic cases. This study aims to emphasize the significance of forensic textile evidence that can be encountered at crime scene and examine the types of cases in which it is utilized for solving.
Methods: Various forensic case scenarios involving forensic textile evidence have been created. The reconstruction of these forensic cases was made with the Planner 5D design application.
Results: Trace amounts of fibers transferred to the crime scene, yarns and fabrics are the basic forensic textile evidence. Damages on fabrics are also very important evidence and support the autopsy. These damages may occur spontaneously or may be caused by firearms and cold weapons. The nature of the incident is obtained by applying blood pattern analysis to the blood liquid on the fabric. Textile accessories such as cords, buttons, zippers are also found at the crime scene.
Discussion-Conclusions: Forensic textile evidence, which can be any kind of textile surface and accessory, is encountered in many forensic cases such as murder, injury, sexual assault, theft, looting, substance abuse, hit-and-run, suicide and kidnapping. They are also used in incidents such as burials, mass deaths, and in disaster victim identification studies. Understanding the evidential value of such evidence, which aids in clarifying crimes, can significantly enhance the judicial process.

Keywords: Forensic Science, Forensic Textile, Evidence, Forensic Cases

- P09 -

FTIR SPECTROSCOPY APPLICATIONS in FORENSIC SCIENCES

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Background and aims: FTIR (Fourier Transform Infrared Spectroscopy) is a vibrational spectroscopy and is a technique in which the absorption and emission infrared spectrum of matter is obtained. FTIR spectroscopy can simultaneously collect broad spectral data at high resolution. It characterizes the sample in a non-invasive way and is used to identify various evidence such as body fluids, paints or drugs obtained in forensic cases by spectral modelling. In this study, it is aimed to reveal the application areas of FTIR spectroscopy in forensic sciences by showing some studies about identification and classification of various evidence.
Methods: Studies that characterize body fluids (blood, semen, saliva, urine) and various evidence obtained from the crime scene (make-up materials) with FTIR spectroscopy conducted in Turkey were brought together, and the characteristic functional groups in identifying this evidence with FTIR spectroscopy and their analysis was evaluated.
Results: As a result of the studies compiled in this study, it has been determined that each of the biological fluids such as urine, blood, semen, and saliva can be identified and separated from each other. In addition, characteristic regions that will enable the separation of make-up materials belonging to various brands have been determined and it has been observed that their classification has been achieved.
Discussion - Conclusions: In general, the advantages of FTIR spectroscopy are that it does not need consumables, is fast and does not damage the sample. According to the results obtained in the studies, it is possible to identify biological fluids using FTIR spectroscopy from materials or swab samples obtained from the crime scene. In this way, it is possible to detect biological fluids proving sexual assault against men and women in clothes obtained after incidents such as sexual assault, without spending any consumables and without damaging the sample, and it is concluded that it is suitable for forensic analysis. All in all, FTIR spectroscopy is a useful tool for identification and classification studies in forensic science.

Keywords: Forensic Science, Criminalistics, FTIR spectroscopy

- P10 -

ERRORS IN CRIMINALISTICS: THE POSSIBLE APPLICATION OF SYDNEY DECLARATION'S PRINCIPLES IN THE ITALIAN CONTEXT

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Background and aims: In recent times, criminalistics has been trying to adapt to scientific progress by fielding new methodologies to improve the quality of investigations, but at the same time, it shows signs of decline.
An "identity crisis" generated by the occurrence of errors - both in the investigative and in the analysis phases -, which irreparably affect the probative value of a trace and can cause a mistrial. There have been many attempts to stem the critical issues reported, such as the guidelines and the operational protocols. None of these has led a full resolution of the problem.
All that remains is to dwell on the solutions proposed by the Sydney Declaration and on the possible strategies for stemming the phenomenon.
Methods: A case study on judicial files to understand the presence of the error, the fate of the traces collected and the possible strategies that can be used to stem the phenomenon.
Results: In a peculiar way, the analysis of the investigative activities carried out allows errors and deficiencies to emerge in the identification and collection of individual traces, in the failure to change personal protective equipment and in the analysis in laboratory. This is also reflected in the criminal process, not allowing to reach an enough probative standard to convict the possible offender.
In order to stem the critical issues highlighted, in the Italian context an attempt is being made to strengthen the guidelines developed by the Police Forces, such as the PG 14, that provides the procedures to be followed at the crime scene.
Discussion - Conclusions: Although the Police Forces equipped themselves with specific non-binding documents, the possibility of making mistakes still appears very strong.
The road still appears to be uphill. Only the fine-tuning and compliance with the regulatory instruments by the operators can guarantee a full development of criminalistics' operations.

Keywords: Crime Scene, Errors, Criminalistics, Sydney Declaration, Italian context

FORENSIC GENETICS

- P11 -

INTRODUCING A BIOLOGICAL MARKER INTO FORENSIC MEDICAL PRACTICE AS A SUPPLEMENT TO MACROSCOPİC AND MİCROSCOPIC EXAMİNATION OF ORGANS WHEN DETERMINING THE CAUSE OF DEATH BY DROWNING

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Introduction: In cases where diatoms are found in the lung tissue but not in the water sample, it is strong evidence that the person was alive at the time of submersion and inhaled water into their lungs. This can help forensic medicine to determine the cause of death and provide important evidence for legal proceedings. The aim of this study is to optimize the "Diatom Test" method in forensic medicine in Bosnia and Herzegovina.

Methods: The study was conducted as a prospective experimental, randomized study using albino Wistar rats as the model at the Veterinary Faculty of the University of Sarajevo. A total of 32 adult albino rats, were included in the experiment and divided into groups as follows: Group A (eight deceased rats with causes of death other than drowning, but due to mechanical asphyxia, which was then submerged for 1 hour after death); Group B (eight deceased rats with causes of death other than drowning, but due to mechanical asphyxia, which was then submerged for 72 hours after death); Group C (eight rats that were immediately autopsied after drowning, with the cause of death determined as drowning); Group D (eight rats that underwent a 48-hour postmortem period after drowning). We compared results with microscopic analysis.

Results: Microscopic analysis revealed the presence of diatoms in the lungs of rats. Diatoms were not observed within groups A, B, and C, but were found within group D. The number of taxa in the analyzed suspension within samples belonging to group D was extremely low. Values mostly ranged from 1 to 2 taxa. Within group D, in samples 3, 4, and 5, diatoms were identified: Navicula sp. (U3 and U6) and Ulnaria ulna (U4)

Conclusion: Optimization of the "Diatom Test" method could potentially lead to its future use as a routine method within experimental settings. The diatom test is just one tool in a forensic investigation and must be used in conjunction with other evidence and information to make a conclusive determination of the cause of death.

Keywords: Drowning, Forensic, Death, Asphyxia, Rats

- P12 -

EVALUATING THE USE OF RAPIDDNA TECHNOLOGY IN KINSHIP ANALYSIS

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Background and aims: Shortening DNA analysis times in forensic genetics will have positive results in the cases of determining the genealogical relationship of the courts, as well as in criminal cases, the identification of people as soon as possible is very important in solving the crime and reaching the perpetrator. In cases such as mass disasters, it is extremely important to quickly identify the victims. Rapid DNA technology which was introduced in 2012 with the scope of shortening the duration of DNA analyses, has been developed in addition to the devices used in routine and conventional procedures have been reduced to a single step, reducing the risk of people and contamination, and also providing a great advantage in terms of time by providing results in as little as 90 minutes.

Methods: In this study, DNA profiles of 30 families (mother, father, and child) were analysed with the RapidHIT™ ID System, and maternity-paternity probabilities were automatically calculated by the system to determine whether Rapid DNA technology is suitable for use in kinship analysis. To confirm the method, DNA profiles were obtained by 3500 GA.

Results: As a result of the study, 9 out of 30 families had a problem with DNA profiling, resulting in miscalculation in the automatic kinship analysis.

Discussion - Conclusions: Consequently, while the method offers rapid and user-friendly advantages for forensic sciences, the software underlying the system requires re-evaluation. Issues such as maternal-paternal exclusion in kinship analyses, arising from challenges like un-called alleles, warrant further attention.

Keywords: Forensic Genetics, DNA Analysis, STR, Human Identification, Rapid DNA Technology, Kinship Analyses

- P13 -

DNA EXTRACTION FROM BLOOD SAMPLES EXPOSED TO CONSTANT CONCENTRATİONS OF HYDROCHLORIC ACID AND SODIUM HYDROXİDE SOLUTIONS

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Background and aims: In cases of injury and death by firearms and sharps, blood samples are frequently found at the crime scenes. In some cases, it is known that the perpetrator tries to clean and remove these blood stains and uses strong cleaning materials for this purpose. This research was conducted to determine whether people can destroy bloodstains by using these chemicals and whether DNA recovery is possible as a result.

Methods: In this experimental study, blood samples taken from ten volunteers were stained on tiles and after waiting for a certain period of time, the stains were wiped with hydrochloric acid and sodium hydroxide. For the control of the initial DNA amount, DNA isolation was carried out by swabbing the blood stains that were stained in the same way and not exposed to any chemicals. Then, swab samples were collected from blood spots wiped with hydrochloric acid and blood spots wiped with sodium hydroxide for DNA isolation. DNA isolations were performed with the QIAamp DNA Investigator Kit. After the isolation process, DNA quantification of the initial blood spots, blood spots wiped with hydrochloric acid and blood spots wiped with sodium hydroxide were performed using the Qubit 4.0 Fluorometer and Qubit dsDNA HS Assay Kit and the results were evaluated.

Results: In this study, assuming that cleaning agents containing strong acids and strong bases such as salt spirit and caustic soda were used to wipe blood stains at crime scenes, the effects of these substances on the amount of DNA in blood samples were examined and the results were evaluated. According to the results obtained; an average of 3.7ng/µl DNA was obtained in control blood samples that were not exposed to chemicals. While an average of 1.31ng/µl DNA was obtained in samples taken from surfaces wiped with HCl, 64.59% of the DNA amount was lost. In samples taken from surfaces wiped with NaOH, an average of 0.55ng/µl DNA was obtained while 85.13% of the DNA amount was lost.

Discussion - Conclusions: It was observed that the basic NaOH solution caused more damage to DNA than the acidic HCl solution. In this study, it was determined that DNA is not completely destroyed even under harsh conditions and that a complete profile can be obtained with this amount of DNA despite both erasure conditions when identification is performed.

Keywords: Forensic Sciences, Forensic Genetics, Blood Stains, Cleaned Blood Stains with HCl-NaOH, DNA Recovery

- P14 -

DNA RECOVERY FROM BLOOD AND SEMINAL FLUID SAMPLES EXPOSED TO DILUTED SODIUM HYPOCHLORITE (BLEACH)

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Background and aims: Perpetrators may erase biological evidence to avoid being detected, and situations can arise where psychological pressures result in unintentional or deliberate tampering of evidence. The study aimed to extract DNA from fabrics exposed to diluted sodium hypochlorite, carrying blood and semen stains, followed by washing. Its objective was to evaluate the feasibility of DNA profiling from evidence treated with diluted sodium hypochlorite, whether done intentionally or due to psychological factors.

Methods: Blood and semen samples from 10 males and blood samples from 10 healthy individuals were used to create stains on cotton and denim fabrics. Stained fabrics were treated with diluted sodium hypochlorite, washed with detergent at 90°C, and exposed to UV light and luminol screening. DNA was isolated using the spin column method, and DNA quantity was measured fluorometrically. The study aimed to evaluate DNA recovery after treating biological stains with diluted sodium hypochlorite on denim and cotton. Fabric samples underwent washing, drying, preliminary screening, DNA isolation, and quantification.

Results: The study successfully extracted DNA from fabric samples with blood and semen stains. These samples underwent 15-minute treatment with diluted sodium hypochlorite and machine-washing at 90°C. DNA isolation employed the spin column method for stained fabric samples, consistently resulting in effective DNA recovery. While DNA retrieval was feasible across fabric types, quantities varied. Some showed increased yields, while others had decreased amounts.

Discussion - Conclusions: Fabric samples with semen and blood stains, treated with diluted sodium hypochlorite for 15 mins and washed at 90°C, showed DNA recovery of 0.0389 to 3.06 ng/µl using the spin column method. Regardless of fabric type (cotton or denim), both were suitable for DNA retrieval. Denim yielded more DNA due to its adhesive surface. This study demonstrates DNA recovery is possible even when evidence is intentionally destroyed or washed away in sexual assault cases.

Keywords: Sexual Assault, Blood Stains, Semen Stains, Forensic Genetics, DNA Recovery from Stained Fabrics Cleaned with Sodium Hypochlorite

- P15 -

ADVANCING FORENSIC DNA ANALYSIS: EXTERNALLY VISIBLE TRAITS AS PHENOTYPIC MARKERS

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Background and Aims: DNA identification traditionally relies on comparing short tandem repeats (STRs) between unknown and reference profiles. In cases where references are lacking, exploring alternative identification methods becomes essential. Recent advancements in DNA analysis incorporate externally visible characteristics (EVCs) as predictive markers for physical traits. These markers are utilized in identifying disaster victims or when suspects are unavailable. The aim of this study is to explore and assess the utilization of externally visible characteristics (EVCs) as markers for DNA identification, especially in scenarios without available reference samples.

Methods: Externally visible characteristics encompass eye, hair, and skin color, height, facial features, age estimation, biogeographic ancestry, and baldness (androgenic alopecia). This approach offers insights into multiple phenotypic traits simultaneously, eliminating the need for reference samples.

Results: The utilization of EVCs provides a distinct advantage by revealing numerous phenotypic characteristics of associated individuals. This negates the requirement for reference samples and streamlines the identification process.

Discussion - Conclusions: The increasing focus on EVC research holds significant implications, enabling accurate determination of phenotypic profiles through DNA analysis. This advancement is poised to enhance investigations involving criminal activities and missing persons. Notably, the EVC approach prioritizes the analysis of crime scene samples, addressing ethical concerns related to confidentiality.

Keywords: Externally Visible Characteristics (Evcs), Physical Traits, DNA Phenotyping

- P16 -

ANALYTICAL APPROACHES TO EXAMINING PSA (PROSTATE SPECIFIC ANTIGEN) CONCENTRATION IN SEMEN SAMPLES

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Background and Aim: Forensic sciences play a major role in sexual assault cases. It is of great importance to be able to detect the semen of the accused in the body cavities of the victim, on his clothes or at the crime scene, in order to definitively prove the sexual assault allegation and to determine the identity of the aggressor. The semen in the body cavities will either remain in traces or disappear as it is diluted by drainage or by washing the person. Two methods are used to detect this semen found. The first of these is the method based on direct microscopic examination. The second is the method of showing the presence of semen by searching for a chemical compound or enzyme depending on the chemical reaction.

Method and Material: PSA concentration measurement, which is an important marker in the detection of semen and included in the second method, has been successful in proving the presence of semen. In studies related to this, either rapid antigen test kits or ELISA method were used. In this study, PSA concentration measurements will be made with Cobas E402 analyzer in various dilutions of semen samples taken from volunteers.

Conclusion: In our study, unlike other methods, the ECLIA method will be used, and the results to be obtained from this method and the usability of this method will be discussed, and the advantages and disadvantages of the application will be determined.

Discussion: In order to eliminate the high-dose hook effect that will occur if the semen is studied without diluting, the sample should be diluted and studied. Since PSA is found in some other body fluids, albeit at very low levels, the important thing is not that the sensitivity limit of the test is very low, but that it is at a point where it can distinguish the antigen in other body fluids from the antigen in semen.

Keywords: Sexual Assault, Semen, ECLIA, PSA

- P17 -

DNA RECOVERY FROM DIFFERENT BLOOD-STAINED FABRICS DISCARDED IN A LAKE

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Background and aims: The persistence of biological material depends on environmental factors. These factors include temperature, UV exposure, rain, wind, humidity and the presence of microorganisms on the surface. Prolonged exposure to or contact with water can affect the structure of DNA and therefore its availability. It is difficult to preserve and recover DNA structure in biological samples collected from crime scenes with bodies or evidence discarded in lake or seawater. This study evaluates DNA recovery from different blood-stained fabrics discarded in a lake and exposed for different durations.

Methods: In this study, blood-stained wool, cotton and leather fabric samples were used and soaked in lake water for one week, one month and three months and then DNA recovery from these samples was evaluated after DNA extraction and quantitation.

Results: In general, the highest amount of DNA was recovered from cotton fabric samples, while the lowest amount of DNA was recovered from wool fabric samples. Cotton fabric samples immersed in lake water for one week showed the highest DNA recovery. Regardless of the fabric type, the highest DNA recovery was obtained from leather fabrics among the samples left for three months.

Discussion and Conclusions: In general, the highest amount of DNA was obtained from cotton fabric samples, while the lowest amount of DNA was obtained from wool fabric samples. Cotton fabric samples were soaked in lake water for one week and showed the highest DNA recovery. Regardless of the fabric type, the highest DNA recovery was obtained from leather fabrics among the samples left for three months.

Keywords: Forensic Sciences, Forensic Serology, Blood Stains Discarded in a Lake, DNA Recovery From Blood Stains Discarded in a Lake

FORENSIC NURSING

- P18 -

EVIDENCE COLLECTION PROCEDURES IN SEXUAL ASSAULT CASES: A MODEL PROPOSAL FOR TURKEY

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Background and Aims: The importance of providing medical and forensic support services to victims of sexual assault in an integrated and coordinated model is a practice unanimously recognized by WHO and other international organizations. In Turkey, the standards on this issue are not fully established and these procedures are still being implemented in pilot centers. In response to challenges faced in the legal process of collecting evidence related to sexual assaults, this study proposes a comprehensive solution. The goal is to establish a standard for the collection of evidence and the selection of appropriate medical personnel for victims of sexual assault that is both in line with international guidelines and protocols and that respects the country's legal regulations.

Methods: The study encompasses an in-depth analysis of current victim care and monitoring practices. It also evaluates potential collaborations among key institutions, particularly focusing on partnerships involving the Ministries of Justice and Health. Non-physician healthcare roles, including midwives and nurses, are examined for their relevance in this context. The study evaluates existing models to ensure their alignment with both global standards and domestic laws.

Results: The research introduces a victim-centric service model aimed at mitigating the risk of secondary victimization. The proposed operational care and victim care center for victims emerges as a central outcome. Furthermore, the study identifies the specific healthcare professionals suitable for staffing the center and defines the standards to govern the collection of physical evidence within the criminal justice system.

Discussion - Conclusions: By crafting a model that harmonizes with both international norms and local legislation, this study pioneers a service-oriented approach that caters to victims of violence and crime alike. The comprehensive framework recommended here underscores the significance of adhering to established guidelines while emphasizing a compassionate and thorough approach to evidence collection and victim support.

Keywords: Forensic Midwifery-Forensic Nursing, Sexual Assault Evidence Collection Kit, Sexual Assault Victim Care Center

- P19 -

FORENSIC NURSING IN DISASTERS AND ITS IMPORTANCE IN THE CHAIN OF EVIDENCE

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Background and aims: Forensic nursing was accepted as a new specialty in nursing with the establishment of the International Association of Forensic Nurses (IAFN) in 1992. They provide services in forensic medicine, biology, toxicology, narcotics etc. The duties of a forensic nurse include recognizing suspicious behaviors and findings of the patient admitted to the health center as a forensic case and creating a safe place for victims. Trauma cases, sexual assault, death investigations, work accidents, suicide attempts, malpractice are the most common forensic cases they care for. In our country, forensic nursing is still not included in the laws and regulations as a specialty branch. Nevertheless, nurses are involved in taking medical history from the victim or offender, taking biological samples and administering treatment, preserving evidence and delivering it to forensic authorities. In disasters, crime opportunities arise in an environment of social disorder and lack of control.

Results: The place where people are injured during a disaster can also be considered as a crime scene. Nurses working with medical national rescue teams or from different countries, protection and chain of evidence will be important than before.

Discussion - Conclusions: The specialty of forensic nursing needs legal regulations; the assignment of forensic nurses in hospitals, trained on the criminal elements that occur in disasters will improve multidisciplinary work with forensic authorities.

Keywords: Forensic Nursing, Evidence, Disaster

FORENSIC PATHOLOGY

- P20 -

SEVERE ABDOMINAL TRAUMA FOLLOWING FATAL SKIING ACCIDENT – CASE REPORT

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Introduction: Skiing and snowboarding are some of the most popular winter sports, which gain more and more popularity worldwide every year. This results in increased reported traumatic injuries associated with falls, collisions, and accidents in the skiing areas.

Case presentation: A 75-year-old man died in a skiing accident following a collision with a tree. The deceased's body was sent for an autopsy, which was performed the next day at the Department of Forensic Medicine and Deontology in Sofia. The external examination of the body did not show any significant findings. The internal examination revealed the following: bilateral rib fractures, lung contusion, and severe abdominal trauma consisting of tearing of the left renal artery, complete separation of the pancreas, and contusion with stratifying of the stomach mucosa. A massive amount of blood was found in the abdominal cavity and the retroperitoneal space. The toxicology result was negative for alcohol and drugs.

Conclusions: In most of the traumatic fatalities, head injury was found to be the primary cause of death. The second most commonly reported cause of death was severe thoracic injury. We present an extremely rare case in the forensic medical practice of a tree-collision fatality with a severe abdominal injury, which was concluded to be the primary cause of death.

Although death is a rare event in such winter sports, it is crucial to raise awareness for the possible fatal outcomes, which could provoke a change in snow riders' behavior and lead to a reduction in the number of accidents. The study of the type of sustained injury and their localization is important for medical practitioners. Knowing what to expect could help them make different strategies for fast and adequate medical treatment when needed.

Keywords: Skiing, Injury Pattern, Autopsy, Fatal Incidents, Abdominal Trauma

- P21 -

CASE OF PENETRATING STAB WOUND OF THE CHEST AND DEATH DUE TO PULMONARY THROMBOEMBOLISM

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Background and aims: From a medico-legal point of view, sharp-force injuries are prevalent in our practice in cases of suicides or homicides. Our task is to establish the type of injury and what tissues, organs, or vessels are affected; to define the main reason for death; to identify the weapon, to determine the qualification of injury, etc. Stab wounds of the chest may lead to life-threatening conditions, respectively to death. The following case presents a penetrating stab wound of the chest which is surgically treated but the patient dies from complications.

Methods: A 31-year-old man is attacked by an unfamiliar group of men. He was stabbed in the right chest with a knife with a blade length of 28 cm and rushed into the emergency room. Immediate diagnostic and treatment measures were undertaken by the medical staff. Imaging studies – computed tomography and radiography were performed and a penetrating stab wound of the right chest, laceration of the lung, and hemopneumothorax were established. Thoracocentesis, thoracotomy, and laparotomy were undertaken. The lung was found collapsed and lacerated. A rupture of the right internal thoracic artery, rapture of the diaphragm, liver laceration, and hemoperitoneum were established. The patient was sent to the intensive care unit for subsequent active treatment. After twelve days his condition improved and stabilized. Two more days later, a severe sudden shortness of breath and cyanosis on the face occurred and the patient died.

Results: An autopsy was performed and it was established that the cause of death was cardiac arrest. A documentary expertise was appointed to our crew to determine if there is a connection between the stab wound and the cause of death. We performed a histopathological examination on tissues of internal organs that were taken during the autopsy but were not examined yet. We made a conclusion that the cause of death was pulmonary thromboembolism.

Discussion - Conclusions: With an autopsy and following histopathological examination performed, the immediate cause of death was determined as a cardiovascular and respiratory failure as a result of pulmonary thromboembolism. The liver injury caused a release of blood coagulation factors with an increase in thrombus formation and passage of thrombotic masses into the pulmonary vessels.

Keywords: Clinical Forensic Medicine, Forensic Sciences, Sharp-force injury, Pulmonary Thromboembolism, Homicide

- P22 -

INFANT PNEUMONITIS DUE TO TRACHEOSOPHAGEAL FISTULA: TWO AUTOPSY CASE STUDIES

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Background and aims: Esophageal atresia and/or tracheoesophageal fistula (EA/TEF) is an uncommon congenital abnormality occurring secondary to abnormal tracheoesophageal organogenesis. Although esophageal atresia (EA), with or without tracheoesophageal fistula (TEF) is relatively uncommon, it represents the most common upper gastrointestinal birth defect. EA/TEF can be anatomically classified into five subtypes using the Gross classification (Types A, B, C, D, E/H). In type E/H the continuity of esophagus is not interrupted, therefore the onset of symptoms is delayed, and the diagnosis is often missed. Aspiration pneumonitis (Mendelson' s syndrome) is a chemical injury due to the inhalation of sterile gastric contents, while aspiration pneumonia has an infectious course due to the inhalation of oropharyngeal secretions, which are colonized by pathogenic bacteria. The aim of this presentation is to report two infant autopsy cases of aspiration pneumonitis with tracheoesophageal fistula involvement.
Methods: Report of two cases and review of relevant literature. We searched PubMed for English-language articles using the key words "aspiration pneumonitis", "aspiration pneumonia", "tracheoesophageal fistula", "esophageal atresia infants".
Results: We present two infant cases of aspiration pneumonitis with tracheoesophageal fistula involvement. The macroscopic and microscopic findings in both cases revealed a fistula between the esophagus and the trachea suggesting an H type tracheoesophageal fistula, while the histopathology findings of the lungs suggested the aspiration pneumonitis diagnosis. Also, histopathological examination revealed findings compatible with pulmonary hypertension in one of the cases.
Conclusions: Aspiration pneumonitis is a rare clinical condition but very common among infants with TEF. Early endoscopic and radiographic diagnosis along with surgical intervention and comorbidity management, may improve the outcome by reducing the possibility of complications such as aspiration pneumonitis. It is important for Forensic Pathologists to report such cases so that information about the disorder can be established, resulting in a better understanding of the entity itself.

Keywords: Aspiration Pneumonitis, Aspiration Pneumonia, Tracheoesophageal Fistula, Esophageal Atresia Infants, Death, Autopsy

- P23 -

ACUTE ESOPHAGEAL NECROSIS (BLACK ESOPHAGUS): AN AUTOPSY CASE STUDY

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Background and aims: Acute esophageal necrosis (AEN), also known as black esophagus, is a rare entity, appearing four times more often in men, with the patients' mean age being 67 years at the time of the diagnosis, usually occurring in patients with poor nutritional status and multiple comorbidities. While the etiology of AEN is not yet specified, ischemia and gastric outlet obstruction are often reported as predisposing factors. Distal esophagus involvement is almost always present in AEN. Perforation, hemorrhage, or esophageal stenosis may be present in some patients. The aim of this report is to present the case of an elderly woman's postmortem examination findings that were suggestive of black esophagus. This paper highlights the importance of information about the case's comorbidities, medical record, and the use of microscopic findings in investigating the cause of death in upper gastrointestinal hemorrhage cases.

Methods: Case report and review of the literature. We searched PubMed for English-language articles using the key words "acute esophageal necrosis," "necrotizing esophagitis", and "black esophagus".

Results: We present the case of a 78-year-old woman with a history of Parkinson's disease and depression disorder. The postmortem examination (PME) revealed a blackened and thinned esophageal wall suggestive of necrosis of the distal esophagus while the esophageal lumen and the stomach were full of blood and blood clots. Histopathological examination confirmed the diagnosis of AEN confined to the mucosa, including infiltration by neutrophils lymphocytes, although in some areas the inflammation involved the submucosa and muscularis. Histopathological examination of the stomach and of the duodenum revealed erosive gastritis and duodenitis. Cause of death was hemorrhage of the upper peptic track.

Conclusions: AEN is a rare and often fatal entity. Its high mortality is directly linked to the significance of each case's comorbidities.

Keywords: Acute Necrotizing Esophagitis, Necrotizing Esophagitis, Gastrointestinal Hemorrhage, Black Esophagus

- P24 -

SUICIDAL PATTERNS IN THE CERVICAL REGION

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Background: There is an impressive diversity on suicidal methods, and reports of rare cases are numerous. The cervical region and its structures are highly susceptible to life-threatening injuries, and hanging is a notorious method of suicide.

Methodology: The authors present here two cases with self-inflicted lethal wound to the neck. However, the cases presented here are unusual due to some factors. The first one used an elastic thread that served as a tourniquet when wrapped around the neck. The second one self-inflicted a deep wound cutting through the right carotid artery, jugular vein and paratracheal structures, with several hesitating marks being visible as well.

Discussion: Deep, profound self-inflicted wounds to the neck will leave little space for probable survival. Victims generally use cables, strings or wires whose consistency is tight and inflexible. Of pathogenetic importance might be the fact that elastic bands have the effect of a tourniquet, with an enhanced blocking role on the circulatory system. Venous compression will cause congestion and facial hyperemia, which were very much visible in one of our cases.

Conclusions: Strangulations through a tourniquet-like mechanism are mostly homicidal; while ligature strangulations are common as a suicidal tool, even in specific settings such as in custody. It is of high importance a thorough and well-documented examination of the crime scene, as well as the recollection of all data regarding any previous psychiatric condition of the victim.

- P25 -

EXPOSURE TO INFLUENCING FACTORS OF THE WORK ENVIRONMENT AND THEIR IMPACT ON THE HEALTH OF FORENSIC PATHOLOGISTS IN EUROPEAN COUNTRIES

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Background: Forensic medicine (FM) is a unique multidisciplinary scientific field that combines knowledge and skills of the biomedical and legal profession. FM specialists provide investigators observations and facts according to the causality of injury or death as connected with criminal acts. The medico-legal autopsy has been considered as a basic method on clarifying occurrences found on dead body. Performing requires special knowledge, competence, and environmental demands which in return exposes FM specialists to substantial occupational risks, hazards, and sterns due to many hazardous sources and influencing factors. Important good practice prerequisites lie upon the quality-managed and secure-supported working environment which is the base for achieving cooperation that will result in irrefutable facts further provided to the investigators.

Aims: To investigate and describe the occurrences of factors in the working environment considered as influential due to their qualitative and quantitative impact on work and health sustainability of FM experts.

Methods: Group (N=159) of FM specialists employed in institutions accross the EU filled an anonymous questionnaire and assessed the status of general and specific factors of the working environment, conditions and modes of work, incidental circumstances during work, specific working conditions and crisis communication with the environment.

Results: Stress was the most influential factor in the working environment that greatly changed the quality of work and the sustainability of health. High presence of stinging and cutting injuries was noted (11.9% respondents had it more than ten times). Most of the respondents answered "to a large extent" or "completely" to the question of the stressful nature of the job comparing to respondents who answered the same question "no even" (OR=52.51, 95%CI 1.84-1.500.32, P=0.021).

Conclusion: High incidence of stress is an omnipresent factor in the work environment of FM specialists, which significantly reduces the quality of work and health sustainability, which cannot be prevented by usual methods and improvements in the working environment, so reduced weekly working hours and beneficial retirement remains as preventative measures of choice.

Keywords: Occupational Risks and Hazards, Working Environment, Influencing Work Factors

- P26 -

ROAD TRAFFIC SAFETY IN CANADA FROM 2003-2017

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Background and aims: The objective of this study was to analyze conditions relating to road traffic safety in Canada from 2003 to 2017.

Methods: Data was collected by using the Canadian Motor Vehicle Traffic Collision Statistics reports, Canadian Centre on Substance Use and Addiction, and Canadian Council of Motor Transport Administrator' s NORP reports. Research focused on three consecutive five-year periods (2003-2007, 2008-2012 and 2013-2017) in accordance with Canadian national road safety strategies. Statistics was performed using Kruskal-Wallis test to compare the difference among the three time-period clusters for the major RTA outcomes - fatal collisions, fatalities, injuries and serious injuries. Descriptive data (age, location and driving impairment) helped illustrate RTA demographics to aid in future study methodologies.

Results: During 2003 to 2007, the median number of fatalities was 2,768 (2,755.8-2,877.0). In the second time cluster median was 2,216 (2,062.8-2,286.3) and in the third it was 1889 (1846.3-1909.8), a decrease of 879 fatalities. The initial five-year time period showed a median of 15,605 (14,930.5-15,870.0) serious injuries followed by a decrease to 11,796 (11,072.0-12,179.0) in the second data cluster and again to 10,662 (10206.5-10783.8) serious injuries in third time cluster. Difference in three five-year periods in terms of fatal collisions, fatalities, injuries and serious injuries was statistically significant (P=0.02).

Conclusion: There was a significant difference in the amount and type of injuries and fatalities when compared as three sets of five-year clusters. Most of fatalities were in the 65 and over age group, and most injuries were sustained mostly by the 24 to 34 age group. Fatal collisions were more likely to occur on a rural roadway rather than an urban road. There has been a steady increase in the seatbelt usage in Canada. Impaired driving due to alcohol has seen a decrease, while drug-induced road fatalities unfortunately made an increase.

Keywords: Road Traffic Accidents, Safety, Alcohol, Seatbelt

-P27-

OPTIMIZATION OF THE "DIATOM TEST" METHOD: YES OR NO

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Introduction: In cases of drowning victims, diatom tests are not commonly employed during autopsies. Instead, experts rely on macroscopic examination by the pathologist. Due to the limitations of these methods, it is often insufficient to establish a diagnosis. The aim of this study is to optimize the "Diatom Test" method in forensic medicine in Bosnia and Herzegovina.

Methods: The study was conducted as a prospective experimental, randomized study using albino Wistar rats as the model at the Veterinary Faculty of the University of Sarajevo. A total of 32 adult albino rats, were included in the experiment and divided into groups as follows: Group A (eight deceased rats with causes of death other than drowning, but due to mechanical asphyxia, which was then submerged for 1 hour after death); Group B (eight deceased rats with causes of death other than drowning, but due to mechanical asphyxia, which was then submerged for 72 hours after death); Group C (eight rats that were immediately autopsied after drowning, with the cause of death determined as drowning); Group D (eight rats that underwent a 48-hour postmortem period after drowning). We compared results with microscopic analysis.

Results: Microscopic analysis revealed the presence of diatoms in the stomachs of rats. Diatoms were not observed within group A, but were found within groups B, C, and D. The number of taxa in the analyzed suspension within samples belonging to groups B, C, and D was low. Values mostly ranged from 1 to 8 taxa. Within group B (U5), only one taxon (Diatoma vulgaris) was identified, while in group C (U3) also only one taxon (Melosira varians) was noted. Within group D, EIGHT taxa were identified: Epithemia adnata (U1), Nitzschia palea, Encyonema ventricosa, Gomphonema minutum, Cocconeis pediculus, Encyonema minutum, Navicula lanceolata, Ulnaria ulna (U2), and Cyambella sp. (U3).

Conclusion: Optimization of the "Diatom Test" method could potentially lead to its future use as a routine method within experimental settings. This experimental study is a starting point that guides us towards the optimization of tests and sampling in cases of unexplained etiology.

Keywords: Drowning, Forensic, Death, Asphyxia, Experimental

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EVALUATION OF DEATH DUE TO TIRED BULLET INJURIES WITH AUTOPSY FINDINGS AND FORENSIC MEDICAL ASPECTS

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Background and aim: When there is shooting at a vertical or near-vertical angle to the ground, the bullet goes upwards first and after a while loses its kinetic energy after reaching a certain distance and speed depending on the factors such as firing characteristics and the diameter of the barrel starts to fall gaining speed again with the effect of gravity. This free-falling bullet is called a "tired bullet". In this study, we aimed to contribute to the literature with autopsy findings.

Methods: We evaluated the 9 tired bullet cases in our institution, whose autopsies were performed between the years of 2013-2022. Forensic investigation information of the cases, demographic characteristics, autopsy findings, local and national media coverage of the cases were all taken into consideration.

Results: Six of the cases were male and three were female. The events took place in the (n=2) home garden, (n=2) open area wedding hall, (n=2) in the middle of the street, (n=1) in the nut field, (n=1) in the playground and (n=1) in the plateau. During the autopsies, bullets were detected in the body for 8 of the cases, entry-exit wound was observed in 1 patient with no bullet inside. In 7 of the cases, the bullet entrance wound was found in the head region, for 1 case the entry wound was on face, and for 1 case at the right lower quadrant of the abdomen.

Discussion - Conclusions: In order to prevent such injuries, it is necessary to take measures to increase social awareness, and to regulate significant legal controls and legal sanctions against uncontrolled shootings in living spaces.

Keywords: Forensic Medicine, Tired Bullet, Autopsy, Media

- P29 -

SOMETIMES CARBON MONOXIDE HIDES UNDER MOLD

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Background: Gas and oil furnaces produce carbon monoxide (CO). In confined or poorly ventilated spaces, oxygen concentration may be lower than atmospheric, leading to incomplete combustion and additional production of CO.
Case outline: A 54-year-old worker was found dead in a rented room. The room was very small, with only one firmly closed window. During the previous night, the outside temperature was around -10°C. The body was found on a chair, leaning towards the table, hands on the forehead. The autopsy showed no signs of external injuries. Moderate putrefaction changes were present; the skin, mucosae, and internal organs had reddish-pink discoloration. Mold was present on the face, in the nose and mouth, while the fingers of the left hand were mummified. Internal examination showed signs of cardiomegaly (the heart weighed 440 g), moderate atherosclerotic changes, and fatty liver. Toxicological analysis revealed 50% of carboxyhemoglobin (5.19 mmol/L of CO) and 1.11‰ (1.13 mg/mL) of ethanol in the blood. Upon additional inquiry made by the forensic pathologist, the police reported that an oil-burning furnace was present at the scene of death.
Conclusion: The fact that carboxyhemoglobin is resistant to putrefaction is of great value when determining the manner of death because it helps to rule out a seemingly natural death or death of unknown cause as accidental, as in the presented case.

Keywords: Forensic Pathology, Carbon Monoxide, Putrefaction, Manner of Death, Autopsy

- P30 -

ASSOCIATION BETWEEN ATHEROMATOSIS AND HYPOTHYROIDISM: A BRIEF REPORT

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Background and aims: Thyroid dysfunction has impact on the cardiovascular system. The correlation between atheromatosis and hypothyroidism is a topic frequently reviewed in the literature, still under debate. The aim of this study analyze the possible correlation between sudden cardiovascular death and hypothyroidism (TSH value above cut-off).

Methods: We performed an observational study on sudden death cases between March and July 2023. Exclusion criteria were: violent deaths, postmortem interval over 72 hours; deaths of necropsy undetermined cause. Cases included in the study were divided into 2 groups: group 1-sudden deaths from cardiovascular causes (SCVD), group 2-sudden deaths from other causes (SOD). Variables analyzed were: adipose tissue disposition, abdominal fat pad thickness, degree of carotid atheromatosis, degree of coronary atheromatosis, TSH on peripheral blood sample using rapid kit with a threshold value of 5µUI/L. For statistical analysis of the data we used Jamovi.

Results: This resulted in 28 cases of sudden death included in the study so far, 20 (71.4%) males and 8 (24.6%) females. Of these 22 (78.6%) had SCVD (group 1) and 6 (21.4%) had SOD (group 2). No statistically significant chi 2 associations were found between TSH value above the cut-off and cause of sudden death, degree of carotid and coronary atheromatosis, respectively, on the necropsy cases analyzed.

Conclusions: The positive association between carotid atheromatosis and hypothyroidism, frequently detected in relatively numerous studies, was not proved in the present pilot study on necropsy cases. Studies on a larger number of cases are needed, taking into account possible other pathophysiological factors with an atheromatous role.

Keywords: Atheromatosis, Hypothyroidism, Necropsy, TSH

- P31 -

A LANDSCAPE OF MOLECULAR METHODS IN FORENSIC INVESTIGATIONS

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Background and aim: In past decades, rapid advancements in science and technology have been demonstrated that there is no limits of molecular application in scientific field and other disciplines which uses the same techniques and research methodology. The first field of investigation in this area is human identification by performing deoxyribonucleic acid (DNA) test for identification through biological stains of criminal cases. Recently, advance molecular methods has been expanded to pathophysiological analysis beyond the category of human identifications. The aim of this presentation is to offer an elementary view on improved molecular biological techniques in Forensic Medicine domain to reveal its applicability.

Method: In this aspect various published review article and research studies were evaluated in reference to Age Prediction, Post-mortem interval and sudden natural death. The application of molecular method in Forensic Medicine were analyzed through the experimental models proposed to predict values.

Results: Studies have shown the possibility of a molecular approach to support up to the approximation. Measurable or quantifiable technique for degradation of nucleic acid molecule such as DNA, RNA, micro-RNA and protein are used to investigating post-mortem interval, genes for sudden death, age prediction within certain time frame.

Discussion and Conclusion: The role of Molecular biology methods has been generous to clarifying pathophysiological changes in death processing. These methods could be applicable as an auxiliary technique to diagnose the forensic pathology leading up to death in post-mortem samples. It is suggested that such methods can be included into routine death investigations. A training programs could be executed in forensic medicine for assessment of death according to autopsy and laboratory findings which may transform to diagnostics investigation.

Keywords: Molecular Techniques, Age Prediction, Post-Mortem Interval, Experimental

FORENSIC PSYCHIATRY

- P32 -

FORENSIC EVIDENCE OF EXTREME VIOLENCE IN A CASE OF MATRICIDE

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Background and aims: When it comes to crimes committed by children, murder is a rare phenomenon, and when it occurs it causes surprise, horror, anger, rejection and questions such as „what are the factors that contribute to such an act of extreme aggression?" or „what is the psychopathological background in such cases?" . The most disturbing crimes committed by children are considered to be matricide and patricide.

Materials and methods: We present the case of a 13-year-old minor who killed his mother in a manner denoting extreme violence, with a history of attempted patricide at the age of 12. The socio-familial environment, that had a major influence on the evolution of events in the direction of the crime, is remarkable.

Results: The perpetrator of the matricide is a 13 years old male child, characterized by extreme violence - strong, multiple blows with a blunt object (hammer) to the head and face. The injuries committed by the child were similar to those of murders committed by adult criminals, having a similar intensity and falling into a register of hatred that is not characteristic to childhood. The psychiatric examination revealed an above-average level of intelligence, which allowed the planning of post-crime acts, but the socio-familial environment proved to be an unfavourable one, with a life marked by poverty and multiple family antecedents in the sphere of psychiatric pathology and criminality. The relationship between the parents was one of convention, devoid of affection, with the minor being regularly exposed to sexual scenes, either on the Internet, while the father was watching it, or between the parents.

Conclusions: The minor suffered from a behavioural disorder that lead to an antisocial act (matricide), amid family emotional abuse. In the context of the conflict situation within the family and as a result of the prolonged emotional abuse to which the minor was subjected, he acted impulsively and took action.

Keywords: Matricide, Child Murder, Extreme Violence

- P33 -

CORRELATIONS BETWEEN PARENTING STYLE AND CHILD ABUSE

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Background and aims: Many studies show that greater child abuse risk is evident when parents engage in more parent-child aggression, severe physical discipline and psychological aggression. Parental child abuse risk can be estimated by evaluating parent reports of harsh, aggressive parenting behaviors exhibited during parent-child conflict. This paper attempts to analyze the patterns of attachment between child and parents as a basis of further child abuse.
Methods: The sample was comprised of parents engaged in a retrospective study monitoring abuse risk, with over involving families with more sociodemographic risks (i.e., ≤150% of the federal poverty line, receipt of federal assistance, ≤ high school education, single parenthood, ≤ age 18). The participants were analyzed through forensic psychiatric expertise conducted for the needs of the court.
Results: The results summarized the attachment difficulties in maltreating families into: rejection, role
reversal, and the multigenerational transmission of unresolved trauma.
Discussion – Conclusions: Study proves the significance of mothers' and fathers' parenting style history on their own child abuse risk and psychological parent child aggression, and parenting style across the transition to parenthood. These findings emphasized the transmissibility of high levels of authoritarian parenting history on negative parenting but did not provide similar support for low levels of authoritative parenting history relating to similar negative parenting.

Keywords: Child Abuse, Parenting Style, Assessment

- P34 -

BOUNDED BY TRAUMA: NAVIGATING THE COMPLEXITIES OF TRAUMATIC BONDING AND STOCKHOLM SYNDROME

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Background and aims: Traumatic bonding involves a strong emotional bond between an individual and their abuser or captor, often in cases of partner violence. Victims may develop loyalty, attachment, and dependency, making it hard to leave. It is important to recognize and understand this bond in order to provide appropriate support and intervention for individuals experiencing intimate partner violence.The available literature regarding the progression of traumatic bonding is limited, and the elements that play a role in the establishment and perpetuation of traumatic bonding remain undisclosed.

Methods: To comprehend the phenomenon of trauma bonding, a thorough assessment of scholarly literature was done. Peer-reviewed literature was sourced by searching databases. The search was limited to studies published in English between 2018 and 2022. The search was conducted using the terms "Trauma Bonding," and "Stockholm Syndrome."

Results: The research found that trauma bonding, frequently referred to as "Stockholm Syndrome" in certain circumstances, is a complex psychological reaction seen in abuse or trauma sufferers. In spite of the harm the abuser does, it is defined by the close emotional bonds that form between the victim and the abuser. Multiple variables influence the development of it. Traumatic bonding and Stockholm syndrome will be discussed in conjunction with the outcomes of these variables.

Conclusions: Traumatic bonding shares similarities with Stockholm syndrome, but it also maintains its distinct characteristics. Earlier research has employed the phrases "Stockholm Syndrome" and "Traumatic Bonding" interchangeably. Subsequent to its inception, the term "Stockholm Syndrome" has been broadened to encompass diverse individuals and contexts, including victims of intimate partner violence (IPV). For professionals working with abuse victims, understanding its underlying principles is essential since it can affect the victim' s choice of whether to remain in or leave an abusive relationship.

Keywords: Traumatic Bonding; Stockholm Syndrome; Trauma; İntimate Partner Violence

- P35 -

INTIMATE PARTNER VIOLENCE TOWARDS TO WOMEN WITH MENTAL HEALTH PROBLEMS FROM FORENSİC PSYCHIATRIC PERSPECTIVE

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Background and aims: Intimate partner violence (IPV) is defined as intentional harmful behavior directed towards a romantic partner. It can manifest in various forms, including physical, emotional, sexual, economical, or psychological abuse. The primary motivation behind perpetrators' actions is to exert control over their partners and establish dominance within the relationship. Research on IPV has demonstrated that multiple risk factors, including but not limited to societal norms, poverty, alcohol use, and traditional masculinity, contribute to the escalation of such violence. Among these risk factors, the presence of mental illness emerges as a significant contributor to victimization. Studies have unveiled that women with mental illness experience higher rates of violence. This study aims to comprehensively review the existing literature concerning the role of women's mental health status as a risk factor for IPV victimization.

Methods: The research draws on open-access articles sourced through 'scholar.google.com' using keywords such as 'intimate partner violence,' 'domestic violence,' and 'mental illness.' Only original research papers in English have been included in this study.

Results: The findings of this research suggest that women with mental illness are more prone to engaging in unhealthy relationships, largely due to impaired cognitive functioning resulting from their mental health conditions. Additionally, other risk factors, such as low socioeconomic status, early-age marriage, and pregnancy, further exacerbate their vulnerability. Notably, the demographic profile of mentally ill IPV victims often differs from that of non-mentally ill victims. A specific study indicated that the most prevalent forms of IPV experienced by mentally ill individuals are emotional abuse, followed by physical abuse and control.

Discussion - Conclusions: In conclusion, while limited research has been conducted on the association between mental health status and IPV risk, the existing studies emphasize its significance. There is a pressing need for more extensive research in this area to develop effective strategies for preventing IPV cases.

Keywords: Violence, Intimate Partner Violence, Mental Illness

GENERAL

- P36 -

REFORMING PRISON HEALTHCARE: A FOCUS ON DRUG ADDICT REHABILITATION IN BITOLA PRISON, REPUBLEC OF NORTH MACEDONIA

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Background and aims: Prisons are integral components of the global criminal justice system, housing approximately 9 million individuals worldwide. Within penal institutions, prisoners face heightened risks of acquiring HIV, HBV, and HCV, especially those engaging in high-risk behaviors such as intravenous drug use. Consequently, prisons can serve as potential hubs for the spread of infections. In the Republic of North Macedonia, the penitentiary system hosts a significant proportion of drug addicts among its inmates, warranting the necessity for comprehensive and continuous treatment interventions. The primary objective of this research is to highlight the percentage representation of drug addicts among the total incarcerated population in Bitola Prison during the year 2022, alongside an assessment of their healthcare provisions.

Methods: The research aims to showcase the prevalence of drug addicts among the convicts who served sentences at Bitola Prison in 2022, along with the healthcare services provided to them. The study analyzed data from the health care sector within the prison.

Results: According to reports from the health care sector at Bitola Prison, a total of 159 individuals completed prison sentences in the year 2022. Among them, 61 were identified as drug addicts, accounting for 38.3% of the inmate population. Notably, 32 individuals (52.4%) received treatment involving Buprenorphine, while 29 (47.6%) underwent methadone treatment.

Discussion - Conclusions: The healthcare and substitution therapy for convicted individuals struggling with drug addiction in Bitola Prison align with established protocols for their treatment. These interventions are effectively executed by medical personnel employed within the prison's healthcare sector. This research underscores the importance of tailored healthcare strategies to address the unique needs of prisoners grappling with substance abuse.

Keywords: Prisoners, Healthcare, Drug Addicts

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DISTRIBUTION OF INJURY DEATHS IN REPUBLIC OF NORTH MACEDONIA

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Background and aims: Injuries – both unintentional and violence-related – take the lives of 4.4 million people around the world each year and constitute nearly 8% of all deaths. For people age 5-29 years, 3 of the top 5 causes of death are injury-related, namely road traffic injuries, homicide and suicide. Injuries and violence are a significant cause of death and burden of disease in all countries; however, they are not evenly distributed across or within countries – some people are more vulnerable than others depending on the conditions in which they are born, grown, work, live and age. The aim of this research study was to present the amount of injury deaths and their distribution in Republic of North Macedonia in the period of 2019 to 2021.

Methods: A retrospective analysis of the number of registered injury deaths caused by external causes, localization of injuries, burns, frostbites, and poisonings by drugs, medicaments and biological substances has been conducted for the period between 2019-2021. The data has been collected by "Mortality in Republic of North Macedonia" - publication issued by the Public Healthcare Institute.

Results: The total number of deaths in 2019 is 455 (2,23%) out of the total number of deceased with crude rate of 21.93 in 100 000; in 2020 the total number of deaths is 438 (1,7%) with crude rate of 21.11 in 100 000; and in 2021 there are 258 deaths (1.93%) registered with a crude rate of 24.89 in 100 000. According to ICD-10 in 2019 and 2020 the highest percentage of injury deaths are classified as "other and unspecified effects of external causes" (21% and 27%) and in 2021 the highest percentage is classified as "injuries to the hip and thighs" (32.05%).

Discussion - Conclusions: There is solid scientific evidence for what is proven to prevent injuries (and acts of violence) as well as to treat their effects in many contexts. Injuries are predictable and preventable. For all types of injuries (and violence), providing victims with high-quality emergency care can reduce the number of fatalities, short- and long-term disabilities, and aid individuals impacted in adjusting to the effects of the injury or violence on their lives on a physical, emotional, financial, and legal level.

Keywords: Injuries, Mortality, Disability

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UNVEILING NEONATAL AND PERINATAL MORTALITY TRENDS IN BITOLA: A FOUR-YEAR STUDY SPANNING 2019-2022

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Background and aims: Evaluating neonatal and perinatal mortality rates serve as a fundamental gauge of healthcare system performance and socioeconomic advancement. This study addresses the challenge of providing comprehensive care for newborns, an exceptionally vulnerable population, making it a prime focal point of global health policy. The research objectives center on analyzing neonatal and perinatal mortality rates among infants delivered at the Clinical Hospital in Bitola over the period spanning 2019 to 2022.

Methods: Methodologically grounded in a retrospective cross-sectional analysis, the study delves into mortality data pertaining to neonates born at the Clinical Hospital in Bitola across four consecutive years. These findings are contextualized within the broader framework of total births during the same time frame. Methodical data collection from the Neonatal Department's repository at the Clinical Hospital facilitated a comprehensive overview of neonatal outcomes throughout the specified duration.

Results: The outcomes illuminate that out of 2498 newborns delivered, 2481 (99.32%) experienced live births, while 17 (0.68%) were recorded as stillborn. The cumulative perinatal mortality rate for the stipulated period stands at 9.27‰, signifying 9.3 stillborn infants and early post-birth mortalities per thousand live births. Concurrently, the neonatal mortality rate is calculated at 2.42‰, representing 2.4 neonatal deaths within the initial 28 days of life per thousand live births.

Discussion – Conclusions: Comparative analysis against analogous statistics in European counterparts underscores relatively higher perinatal and neonatal mortality rates within the Clinical Hospital in Bitola during the designated timeframe. These findings accentuate the urgency for targeted state interventions to curtail neonatal and perinatal mortalities.

Keywords: Neonatal Mortality, Perinatal Mortality, Mortality Reduction

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BASED ON SITUATIONAL CRIME PREVENTION THEORY, PREVENTING AUTO-BATTERY THEFTS WITH PROBLEM-ORIENTED POLICING MODEL AND SARA PROBLEM SOLVING METHOD

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Background and aim: Combating crime is a two-pronged effort, involving preventive activities to avoid crimes from occurring and investigative elucidate crimes after they happen and bring the perpetrators to justice. The Broken Windows Theory, Rational Choice Theory, Routine Activities Theory, and Situational Crime Prevention Theory are crime theories that offer effective perspectives to law enforcement units combating crime on the streets, models such as Community-Oriented Policing, Problem-Oriented Policing (POP), and COMPSTAT. The POP employs the problem-solving method known as SARA (Scanning, Analysis, Response, Assessment), serves as a valuable guide during the activities of law enforcement units in crime prevention. In our presentation, we will discuss our study at preventing auto battery theft based on the POP and share two significant examples of its outcomes.

Method and material: The study utilized POP and SARA. Data from property crimes that occurred in the last year were categorized. Among these crime categories, auto battery theft was addressed, and an action plan was prepared for its prevention and investigation. As part of this action plan, various materials such as UV pens, labels, brochures were procured, and training and promotional meetings were organized, culminating in a three-month long study

Conclusion: After the study, 7 batteries were found in the trunk of a van, and noticing the label placed on them, the owner of the battery was reached. Subsequently, upon discovering that the apprehended individual was involved in battery theft, they confessed to stealing the other batteries from various locations. In another incident, our auto theft team encountered a labeled battery at a second-hand auto parts store. Collaborating with the relevant team, they traced the owner of the battery and determined that the vehicle was stolen, dismantled, and sold, leading to the capture of the criminals

Discussion: Security units should take various steps based on the Situational Crime Prevention Theory, POP and SARA to address and prevent recurring problems, and these efforts should persist until the problem is resolved.

Keywords: Forensic Science, Problem-Oriented Policing, SARA, Battery Theft

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DEVELOPMENT OF SOLID PHASE MICROEXTRACTION (SPME) METHOD AND LAB-MADE ELECTROSPUN FIBERS FOR AMPHETAMINE-TYPE STIMULANTS DETERMINATION

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Background and aims: Amphetamine-type stimulants (ATSs) are the second most abused substances. Therefore, their analysis plays an important role in the anti-drug effort. Analytical methods turned to microextraction such as SPME that use less solvent and allow working with small sample volumes. The fiber coating plays a crucial role in SPME, and the development of new nanotechnological coatings is an important research area. In this study, an SPME method was developed for ATSs with commercially available fibers, and laboratory-made electrospun fibers were synthesized and successfully applied as an alternative.

Methods: A headspace-SPME method was developed using a polydimethylsiloxane/divinylbenzene (PDMS/DVB) fiber after adsorption, desorption and derivatization procedures in urine with gas chromatography-mass spectrometry (GC-MS). The efficacy of different derivatizing agents was compared. The method was optimized chemometrically by Plackett-Burman design for sample volume, salt amount, mixing speed, equilibrium time, adsorption time, derivatization time and temperature, and then validated. Polyacrylonitrile (PAN), PAN-0.5% carbon nanotube (CNT) and PAN-1.5% CNT nanofibers were deposited on stainless steel wire by an electrospinning method and their effectiveness was compared.

Results: Trifluoroacetic anhydride (TFA) was the most suitable derivatizing agent. Adsorption time, derivatization time and temperature were the most effective factors in the ANOVA analysis. The best results were obtained with 10 min adsorption time, 80 °C derivatization temperature and 1 min derivatization time. The method was found to be selective for AMP, MET, MDA and MDMA. R^2 was >0.99 and mean recoveries were in the range of 72.8%-113.6%. All three lab-made fibers were able to detect ATSs and successfully applied to real urine samples. The most effective results were obtained with PAN-0.5% CNT.

Discussion - Conclusions: A simple, user-friendly, and solvent free HS-SPME method was developed and allowed the simultaneous extraction of ATSs. New coated SPME electrospun nanofibers can be a powerful approach in terms of price, selectivity and sensitivity.

Keywords: Headspace-SPME, Amphetamine-Type Stimulants, Forensic Toxicology, Lab-Made Fiber, Electrospinning

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5F-BZO-POXIZID - A NOVEL SYNTHETIC CANNABINOID IN BULGARIA

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Background and aims: Synthetic cannabinoids (SCs) are new psychoactive substances which are distributed like intended for smoking „legal high" on the drug street market. Chemical structure of SCs consists of four fragments – core, side chain, linker and lipophilic substituent. SCs are alternative to cannabis and possess higher binding affinity for cannabinoid receptors than THC, which implies greater potency, adverse effects, and longer duration of action.

Methods: Seized herbal mixture were provided for analytical study for presence of drugs and toxic chemicals to the Forensic Toxicology Laboratory (Military Medical Academy, Sofia). All materials were analyzed as follow – to 50 mg of herbal mixture were added 2 mL methanol, vortexed for 1 min and sonicated for 20 min. Organic layer was filtrated and evaporated to dryness. The dry extract was reconstituted in 100 µL ethyl acetate and 1 µL analyzed by GC-MS (Agilent 7890B / 5977A, equipped with a DB-1701 column 30 m × 0.25 mm × 0.25 µm; Agilent Technologies, USA). The oven temperature program - 50°C for 5 min, 50-290°C ramp at 30°C/min), hold at 290°C for 13 min). Helium was the carrier gas with a flow rate of 2.0 mL/min, and the injector in splitless mode.

Results: The results from the general unknown screening, provided by GC-MS, identified TWO synthetic cannabinoids, applied to dried crushed plant materials - 5F-BZO-POXIZID ((Z)-N'-(1-(5-fluoropentyl)-2-oxoindolin-3-ylidene)benzohydrazide) and ADB-BUTINACA (N-[1-(aminocarbonyl)-2,2-dimethylpropyl]-1-butyl-1H-indazole-3-carboxamide).

Discussion - Conclusions: Synthetic cannabinoids are the most common new psychoactive substances distributed in Bulgaria. In many cases on the dried herbal material is applied more than one SC. In Bulgaria the most used are indole and indazole type SCs. For the first time in our practice were identified different than these two types SCs – oxoindoline (5F-BZO-POXIZID), which is not scheduled drug and different in structure form the other classes.

Keywords: Synthetic Cannabinoids, Herbal Mixture, 5F-BZO-POXIZID, ADB-BUTINACA.

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THE TOXICOLOGY OF NOVICHOK AND ITS USE IN THE ASSASSINATION ATTEMPTS OF SERGEI SKRIPAL AND ALEXEI NAVALNY

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Background and Aims: The term "Novichok" is now widely known, following its involvement in the attempted assassinations of public figures. However, there is still relatively little information available about this class of substances. The aim of this work is to describe the origins of Novichok agents, present their mechanisms of action, and to offer treatment protocols in cases of exposure to these substances.

Methods: A literature search was performed for information in peer-reviewed publications as to the origins and function of Novichok agents and their treatment. Further, two case studies were analysed: the respective poisonings of Sergei Skripal in 2018, and of Alexei Navalny in 2020.

Results: As a class, the Soviet-era Novichok agents, or "newcomer" agents, are thought to be a type of organophosphate. Novichok exposure results in a fast onset of symptoms, from minutes to hours, which may include shortness of breath. Novichok poisoning causes acetylcholinesterase inhibition, which produces severe, sometimes life-threatening symptoms, including seizures, neurotoxicity, and respiratory paralysis. Both Sergei Skripal and Alexei Navalny exhibited this last symptom. Current treatment to Novichok exposure is three-prong: an antimuscarinic drug to block acetylcholine; an oxime to reactivate acetylcholinesterase; and neuroprotective drugs to reduce brain damage, alongside any required critical care such as mechanical ventilation to ensure adequate airflow. Even in cases of survival, timing is paramount as delayed treatment can cause severe neuropathy.

Discussion - Conclusions: Novichok agents have proven to be highly dangerous, but the medical and scientific communities have utilised whatever little existing information there is to create a treatment pathway. Currently, treatments for Novichok poisoning are relatively effective, but not universally successful - and it must be borne in mind that these substances are in constant evolution.

Keywords: Novichok, Organophosphate, Acetylcholinesterase, Sergei Skripal, Alexei Navalny

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SUDDEN DEATH AFTER USE OF METHCATHINONE (EPHEDRONE) – A CASE REPORT

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Background: Methcathinone (MCAT) is a synthetic derivative of cathinone, which exist naturally in the shrub *Catha edulis* (khat). It occurs as a white to slightly yellow powder or fine crystals. The main routes of exposure to MCAT can be inhalation (snorting) and ingestion. Intramuscular or intravenous injection are also a possible, due to the high-water solubility of the drug. Main symptoms of MCAT overdose are agitation, insomnia, tremor, hyperthermia, diaphoresis, tachycardia, hypotension, abdominal pain, etc. Death can occur from multiple organ failure.
Case description: A 16-year-old girl was admitted to the ICU in a critical condition. Several hours earlier the girl experienced sudden and severe abdominal and back pain which later aggravated throughout the body. The presenting symptoms included also recurrent vomiting, tachycardia and fever. A few hours later the girl died of multiple organ failure.
Methods: A general unknown (GC-MS) screening was performed on urine sample. Quantitative analysis of MCAT in all available specimens was performed by GC-MS using alkaline liquid-liquid extraction and derivatization (acetylation) in the presence of an internal standard (amphetamine-D5).
Results: Methcathinone was detected in *antemortem* urine and quantified in *antemortem* and *postmortem* blood (2 and 7 ng/mL respectively), brain (3 ng/g) and liver (1 ng/g). It is not identified in bile, gastric contents and adipose tissue.
Conclusions: The clinical findings in this case corresponds to the symptoms described for MCAT use in the literature. The measured low concentrations of MCAT in the biological samples here compared to those reported in fatal cases[1] can be explained with a short elimination half-life of the synthetic cathinones in the body and the time of sampling, which is significant for the forensic interpretation.

Keywords: Methcathinone, Synthetic Drugs, Postmortem Toxicology

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EVULATION OF URINE COTININE LEVELS RELATED TO PASSIVE TOBACCO EXPOSURE BY OCCUPATIONAL GROUPS

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Background and aims: Globally, Environmental Tobacco Smoke (ETS) is associated with 883,000 deaths each year (Park et al., 2020). Nearly 433,000 deaths, because they have been exposed to ETS at the workplace. Cotinine is the most common using of this biomarker is to measure tobacco exposure (Tutka et al., 2005). This study aimed to comparing the status of ETS exposure through urine cotinine levels measured among nonsmoking workers over a period of 16 years, from 2008 through 2023.

Methods: Using the terms "tobacco exposure, urine, cotinine levels and occupation" as keywords an extensive literature search was carried out in the ScienceDirect and SCOPUS. From the numerous searches results 78 relevant papers were selected for review. This paper reviews the results for investigations of cotinine levels belongs to non-smokers' urine biological materials on. This paper also reviews the highest cotinine level in occupational groups. Tobacco farmers were not included in this study.

Results: Urine cotinine concentrations was the highest in agricultural workers were measured between 22-50 ng/ml. Cotinine levels measured in other occupational groups, 8-41 ng/ml for restaurant/ bar and café workers, 9.5-28.5 ng/ml for casino workers, 24 ng/ml for traffic police officers, 2- 18.5 ng/ml for sale workers, 4-21 ng/ml for blue collar workers, 3- 18 ng/ml for white collar workers, respectively.

Discussion – Conclusions: The health consequences of passive smoking are well-known, however the rate of SHS exposure is still high in some countries even after the smoking ban at work. Many countries have already successfully implemented smoke-free laws for indoor public spaces and workplaces aimed at limiting exposure to ETS. However, there are no safe levels of exposure that employers must provide a safe environment for their employees. To prevent tobacco exposure, cut-off values and regulations should be established for the control of cotinine levels in the urine in terms of occupational health.

Keywords: Forensic Toxicology, Passive Tobacco Exposure, Urine Cotinine Levels

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EFFECT OF ARTIFICIAL SWEETENERS VERSUS REGULAR MIXERS ON BREATH ALCOHOL CONCENTRATION

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Background and aim: The use of alcoholic beverages with 'diet' mixers is becoming more popular. There have been findings in the literature that when compared to normal mixers, they affect the pharmacokinetics of alcohol, possibly via causing faster stomach emptying. The purpose of this study was to assess breath alcohol concentrations (BrAC) and the pace of stomach emptying in healthy volunteers after consuming either sucrose-containing or artificially sweetened alcoholic beverages.

Methods: This was a two-way crossover trial with an open label. The subjects consumed alcohol on two consecutive occasions, once with diet coke and once with standard coke. In a randomised order, twelve healthy participants were studied twice. They drank a standardised volume of vodka (37.5% ABV) in each session, prepared with either 'regular' coke with sugar or 'diet' coke with artificial sweetener. lion alcolmeter® SD-400 and lion alcolmeter® 500 were used to measure their BrAC every 15 minutes for 3 hours. Their breath samples for stomach emptying measurement were taken in breath bags at the same time. The the gastric half-emptying time ($t_{1/2}$) and lag phase time (t_{lag}) characteristics of these breath samples were determined using an IRIS® device.

Results: Diet coke increased both the peak BrAC (383±94.5 vs. 348±68.2 μg/L) and the area under the breath ethanol curve between 0 and 180 minutes (452.3±95.7 vs. 404.4±72.5 units). Using nonlinear regression analysis, $t_{1/2}$ and t_{lag} were derived from the ^{13}C percent dose recovery values collected by the IRIS® instrument. The diet drink had a shorter $t_{1/2}$ than the standard drink (94.0±13.9 vs. 105±33.5min), and t_{lag} was shorter (50.4±8.2 vs. 51.0±16.5 min).

Conclusions: This study emphasises the need of considering factors other than the alcohol level of a drink when determining safe quantities of intake and the potential of intoxication. The lack of sucrose in diet mixers may cause faster stomach emptying of alcohol, increasing its absorption rate into the blood, resulting in higher peak BrAC and increased exposure to other alcohol-related dangers.

Acknowledgement: Postgraduate studies of Dr. Asena Avci Akca were sponsored by the Republic of Turkiye Ministry of National Education.

Keywords: Alcohol, Gastric Emptying, Diet Mixers, Breath Alcohol Concentration, ^{13}C Acetate Test

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DETERMINATION OF Δ9-THC, THCA, CBD, AND CBN CONCENTRATIONS WITH THE LC-MS/MS METHOD IN HEMP SEED OILS COMMERCIALLY AVAILABLE IN TURKIYE

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Background and aims: Hemp seed oil, which is obtained by squeezing hemp seeds with the cold press method, can be easily obtained from businesses that sell herbal products in our country and are popularly known as "Aktar" or "Lokman Hekim". Since the seeds of the cannabis plant are in contact with the leaves and there is no adequate washing process while producing these oils, cannabinoids with psychoactive effects such as Δ9-THC in the leaves can contaminate the seeds, and the contaminated cannabinoids can penetrate the seed oil during the pressing process. The subject of our study is to determine the concentrations of Δ9-THC, THCA, CBD and CBN cannabinoids in hemp seed oils produced/consumed in our country by randomly taking 20 samples from commercial cannabis seed oils that can be easily obtained from shops and the internet.

Methods: After the samples were treated with the liquid-liquid extraction method, they were analyzed with the Liquid Chromatography Double Mass Spectrometer, which has a much higher analysis sensitivity and is frequently preferred in oil analysis due to the ease of necessary pre-processing.With this study, a unique scientific analysis method will be developed for the determination of Δ9-THC, THCA, CBD and CBN in aromatic oils by LC-MS/MS, and for the first time, oils obtained from the markets in our country will be analyzed. Whether these oils contain cannabinoids or if they contain a psychoactive cannabinoid such as Δ9-THC, the amounts of these substances will be determined.

Results: In our country, a "zero tolerance" approach to drugs, which can be summarized as criminalizing even the lowest amount of illegal substances that can be detected, is exhibited. For this reason, it will be discussed whether the detected amounts can gain the status of "illegal substance" in a possible judicial investigation. With a sentence added to the Law on Control of Drugs a short time ago, with the recommendation of the Ministry of Agriculture, an arrangement was made to allow cannabis cultivation for the production of pharmaceutical active substances. However, the regulation regarding this situation has not been published yet. Thus, as a result of our study, it is also aimed to propose a cut-off value for the amount of Δ9-THC that can be found in hemp seed oils in our country.

Discussion-Conclusions: In conclusion, oils reported as legal that can be found as "illegal" based on the amount of THC they contain causes some problems. In this study, the amounts of cannabinoid components detected in hemp seed oils will be presented.

Keywords: Cannabis, THC, Cannabinoid, Hemp Seed, LC-MSMS, Forensic Toxicology

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IN VITRO REACTIVATION POTENTIAL OF PALLADIUM(II) COMPLEXES OF OXIMES AGAINST PARAOXON AND METHYLPARATHION INHIBITED ACETYLCHOLINESTERASE

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Introduction: Organophosphorus compounds (OPCs) are commonly used worldwide pesticides or weapons of mass destruction (nerve agents), the latter being the most toxic representatives of the chemical warfare agents. For this reason, they are considered as a potential source of threat to the civilian population in the case of a terrorist attack. The mechanism of action of these compounds is the irreversibly inactivation of acetylcholinesterase (AChE). The standard treatment of OPCs poisoning is atropine administration, AChE restoration therapy with oximes, and general intensive care. Despite the significant advantages in antidotal therapy of intoxications with OPCs, there are still unresolved issues especially the lack of universal antidote for all OPCs. The coordination of metal ions with quaternary pyridinium aldoximes is a possible approach for obtaining new cholinesterase reactivators. To overcome the above mentioned shortcomings, in our laboratory a series of oxime reactivators of cholinesterase with divalent palladium(II) ions was synthesized.

Aim: The main goal of the present study is the *in vitro* evaluation of the reactivation potential of the newly synthesized complex species.

Results and discussion: The experimental part of the present work is aimed to the study of the reactivation potential of newly obtained complex species of oxime reactivators 2-PAM (HL^+) and BT-07, BT-08, TMB-4, Obidoxime, BT-07-4M, (H_2L^{2+}) with the ions of Pd(II) towards brain/erythrocyte AChE, inhibited by the organophosphorus insecticides paraoxon and methylparathion *in vitro*, using Ellman' s method. In general, the activity of Pd(II)-containing aldoximes is reduced compared to parent ligands. This can probably be explained in terms of an interaction between the metal(II) ions and the formed oximates, which is sufficiently stable and "blocks" the mode of action of the reactivators. However, it is a step forward to continue our journey with the next adventure – *in vivo* experiments.

Key words: Organophosphorus Compounds, Cholinesterase Reactivators, Quaternary Pyridinium Aldoximes, Palladium(II) Complexes

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COGNITIVE BIASES and ETHICS in FORENSIC SCIENCE

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Background and aims: People tend to think in certain ways that can lead to systematic deviations when making rational decisions. Cognitive biases affect the way we think and act and are seen as a major threat to an error-free profession such as forensic science. In this study, it is aimed to discuss the place and importance of cognitive bias in forensic sciences, which can be based on information processing shortcuts, limited processing ability of the brain, emotional and moral motivations, deterioration in storing and retrieving memories or social effects.
Methods: The current studies of Dr. Itiel Dror, who has important studies in the examination of cognitive biases in forensic sciences, and the guidelines prepared for the precautions to be taken in various countries for the prevention of cognitive biases were researched. In addition, a model proposed by Üsküdar University Addiction and Forensic Sciences Institute will be discussed in order to prevent cognitive biases.
Results: In forensic sciences, there are precautions to be taken in order to minimize cognitive biases that can be encountered in every field such as crime scene investigation, analysis or reporting. It should not be forgotten that forensic studies should be guided and concluded by real evidence, not necessarily by the suspect. A number of tools and methods are considered to minimize bias. Some of these tools have already been implemented in several criminal laboratories and are specifically designed to protect and enhance the independence of mind of forensic scientists whose decisions are based on subjective judgment. For example; appoint case managers to avoid contextual bias by protecting the reviewer from exposure to non-task-related information, May limit the number of changes allowed after exposure to reference materials - only limit analysts to a certain number of changes.
Discussion - Conclusions: For many years it was thought that forensic scientists were unbiased, unaffected by contextual information, and even infallible. With the integration of the concept of cognitive bias into forensic sciences, this idea has lost its effect. And various studies have been carried out to minimize cognitive biases all over the world. Forensic investigators should work from evidence to suspect, not from suspect to evidence. Otherwise, the experts conduct their examination on the suspect, not by the evidence, and causes a biased examination by looking for the suspect in the evidence.

Keywords: Forensic Science, Cognitive Bias, Ethics

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