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Rechtsmedizin in Zeiten von Migration und Flucht

Von asylrechtlichen Aspekten von Folter bis zur Begutachtung von Folteropfern

Neonatizid als mögliche Folge einer negierten Schwangerschaft

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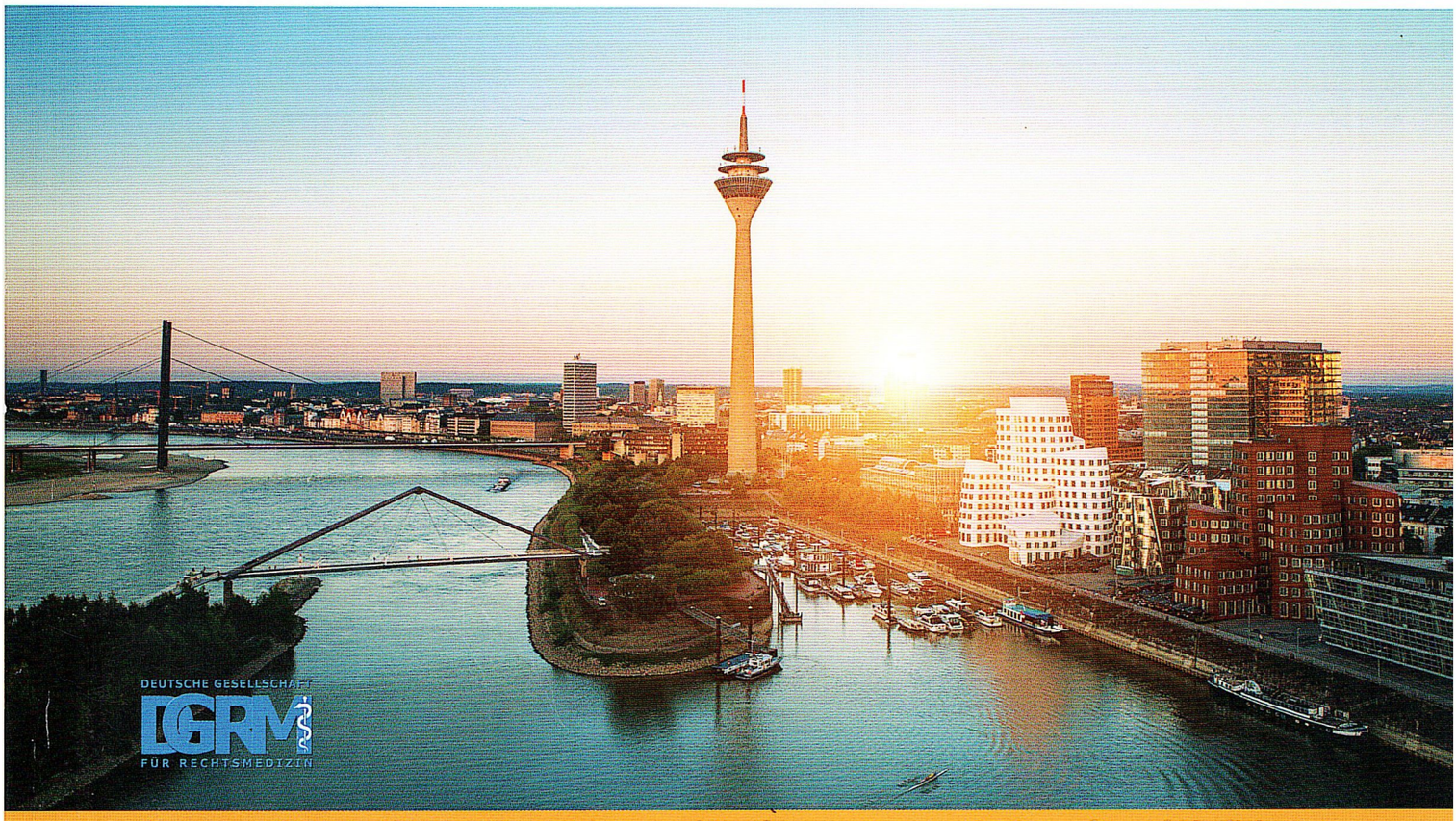

Abstracts of the 10th ISALM and 96th Annual Conference German Society of Legal Medicine

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„Rechtsmedizin in Zeiten von Migration und Flucht"

Sehr geehrte Mitglieder der Deutschen Gesellschaft für Rechtsmedizin,
liebe Kolleginnen und Kollegen,

dieses Heft der Zeitschrift *Rechtsmedizin* steht ganz im Zeichen der 96. Jahrestagung der Deutschen Gesellschaft für Rechtsmedizin (DGRM) sowie dem 10th International Symposium Advances in Legal Medicine (ISALM), die unsere Institute in Düsseldorf und Köln gemeinsam ausrichten. Wir freuen uns sehr darauf, Sie vom 11. bis zum 15.09.2017 im Rheinland begrüßen zu dürfen.

Durch das assoziierte ISALM führen wir eine Tradition fort, die die Zusammenarbeit der DGRM mit der Japanese Society of Legal Medicine (JSLM) pflegt und die eine wichtige Grundlage für Kooperation und Freundschaft zwischen unseren japanischen Kolleginnen und Kollegen und uns bildet.

Unsere Jahrestagung wird dieses Jahr eine internationale Tagung sein; außer unseren japanischen Freunden erwarten wir zahlreiche Kolleginnen und Kollegen aus anderen Ländern. Wissenschaft lebt vom Austausch über die Ländergrenzen hinweg. Wir werden mit unserer Tagung optimale Rahmenbedingungen für einen solchen Austausch schaffen. Sie finden in diesem Heft die Abstracts der Beiträge, die uns erwarten. Vielleicht identifizieren Sie ja schon bei der Lektüre der Abstracts interessante Kooperationspartner, die Sie während der Tagung persönlich kennenlernen können.

Unser Fach ist mit seinen Inhalten sehr nah an gesellschaftspolitischen Entwicklungen, die immer wieder auch neue Fragestellungen und Herausforderungen an uns herantragen. Aktuell sehen wir, dass die Folgen von Migration und Flucht Einfluss auf unsere tägliche Fallarbeit haben.

Ein Beispiel dafür ist die Lebensaltersschätzung bei unbegleiteten minderjährigen Geflüchteten – ein Thema, das z. B. in Schwerpunktheften der *Rechtsmedizin* (s. insbesondere Heft 6, 2014, und Heft 1, 2015) sowie in der Zeitschrift *Deutsches Ärzteblatt* [1] ausführlich dargestellt und diskutiert wurde.

> » Gesellschaftspolitische Entwicklungen tragen immer wieder Herausforderungen an die Rechtsmedizin heran

Ein anderes Beispiel ist die Untersuchung und Begutachtung von Folterüberlebenden als Sonderfall einer klinisch rechtsmedizinischen Fragestellung. Anfragen zur Untersuchung und Begutachtung von Folterüberlebenden häufen sich derzeit in den Instituten für Rechtsmedizin. Im Rahmen der Bearbeitung dieser Anfragen stoßen Kolleginnen und Kollegen regelmäßig auf Herausforderungen. Dabei geht es nicht nur um die Beurteilung besonders gelagerter Fälle, sondern v. a. auch um organisatorische Fragen und die Finanzierung. Unsere Expertise zu Dokumentation und Begutachtung von Misshandlungsfolgen ist hier unzweifelhaft wichtig. Entsprechende Gutachten werden in Deutschland bislang zu wenig beauftragt – und wenn, dann überwiegend über psychosoziale Einrichtungen und nicht durch Behörden.

Dies fügt sich in das Gesamtbild der sicher unzureichenden Versorgung von Folterüberlebenden ein, das Anlass für die Ausrichtung einer interdisziplinären Tagung „Folteropfer sehen – Versorgungspfade bahnen" im März dieses Jahres in Düsseldorf (http://www.folteropfer-sehen.de) war. Die Ergebnisse der Diskussionen mit internationalen Expertinnen und Experten sowie von interdisziplinären Workshops unter Beteiligung von Rechtsmedizinern und Rechtsmedizinerinnen führten zu Forderungen, die in der „Düsseldorfer Erklärung" zusammengefasst wurden, die Sie in diesem Heft finden.

Einige Referentinnen und Referenten der Tagung haben wir angefragt, uns die Inhalte ihrer Vorträge als Beiträge für dieses Heft zur Verfügung zu stellen. Wir sind ihnen sehr dankbar dafür, dass sie dies getan haben – denn wir denken, dass diese Inhalte für unser Fach relevant sind.

Da die Untersuchung Folterüberlebender in einem besonderen rechtlichen Kontext erfolgt, den Rechtsmediziner/-innen kennen sollten, haben wir 2 Autorinnen und einen Autor gebeten, für dieses Heft Beiträge zu einschlägigen juristischen Aspekten zu schreiben; die Erstellung dieser Beiträge wurde durch *Veronika Wolf* und *Barbara Esser* vom Psychosozialen Zentrum für Flüchtlinge (PSZ) Düsseldorf begleitet. Die Perspektiven einer Juristin aus dem Berliner Institut für Menschenrechte (*Dr. Petra Follmar-Otto*, Leiterin der Abt. Menschenrechtspolitik Inland/Europa), eines Entscheiders des Bundesamts für Migration und Flüchtlinge (*Tobias Hinz*, stv. Leiter der Außenstelle Essen) und einer Rechtsanwältin (*Heike Geisweid*, Rechtsanwältin im Bereich Asyl- und Ausländer/-innenrecht) sind sehr unterschiedlich und geben wichtige Einblicke. Aus den 3 Beiträgen wird sehr klar, dass (1.) rechtsmedizinische Gut-

mer investigations did show useful results using S100B and NSE. However, there are no sufficiently established results of postmortem acute phase reaction after traumatic brain injury (TBI). Therefore, the aim of the present study was to investigate changes in the postmortem levels of ferritin, interleukin-6 (IL-6), lactate dehydrogenase (LDH), c-reactive protein (CRP) and soluble tumor necrosis factor-receptor I (sTNFRI) for further determination of secondary brain damage due to TBI.

Material and methods. In 47 cases of TBI (average age: 58 years) and in 49 controls with different causes of death (average age: 56 years), serum and cerebrospinal fluid (CSF) samples were analyzed with different chemiluminescent immunoassays for marker expressions (Randox, Roche). The postmortem interval was limited up to 6 days after death.

Results. CSF levels of ferritin, IL-6 and LDH were significantly higher in TBI cases in comparison to the controls, especially when compared to fatal non-head injuries ($p < 0.05$). For them, no relevant influence concerning the postmortem interval or quality of the samples (haemolytic index) could be detected.

For both, serum ferritin and IL-6 levels, there were a few differences in concentrations between trauma and control groups. However, serum analyses are may influenced by haemolytic processes within the postmortem interval until sample collection.

Discussion and conclusions. The findings emphasize that postmortem biochemistry of several acute phase reaction markers is useful in cases of suspected TBI. Concerning potential influences by postmortem changes, the marker profiles may be helpful to estimate survival times after traumatic impacts.

O-5 cancelled

O-6

Traumatic axonal injury, a clinical-pathological correlation

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Background. Traumatic axonal injury (TAI) is a distinct clinicopathological entity that can cause serious impairment of the brain function and can sometimes be found as a concrete cause of death. It has been discussed from the perspective of its biomechanical importance, and also from the standpoint of certain criteria for the pathological diagnosis of TAI. However, since the time when DAI (diffuse axonal injury) was initially described, there have been few, if any, discussions about the clinical-pathological correlation in TAI. This paper is an attempt to address this issue.

Material and methods. For the purpose of certain pathological diagnoses of TAI, 63 cases with closed head injuries have been subjected to the complete forensic-neuropathological examination, involving immunohistochemistry with antibody against β-APP. In the diagnosis of TAI strict criteria have been followed. Then, retrograde analysis of the clinical parameters has been performed in order to determine some clinical-pathological correlation. The following two most reliable parameters of the impairment of the brain function have been analyzed: the impairment of the consciousness and the time of survival.

Results. TAI has been diagnosed in 47,6% of the cases. In TAI group, 80% of them have been in primary coma, and in the rest of the 6 cases, moderate disturbances of consciousness have been observed. Analyzing the non TAI group, a primary coma was present in 30%. Also, all cases diagnosed with ischemic axonal injury died in a state of coma. Statistically, a significant interdependence was shown between the occurrence of TAI and the occurrence of primary coma (Chi square = 29, 99; df = 2, $p < 0$, 00001). Exploring the correlation between the state of coma and the post-mortem β-APP positive immunoreactivity found on pathological substrate, as a specific and direct indicator of the damage of the axonal fibers, statistically significant association has been shown (Chi – square = 29, 83; df = 2, $p < 0$, 00001). Finally, the statistical evaluation did not show any significant association between the occurrence of TAI and the time of survival (Chi square = 4, 75; df = 2; $p = 0$, 0929 > 0.01).

Discussion and conclusions. Comparing the two groups, the one with TAI and the other without TAI, and using appropriate statistical evaluation, our results show that TAI is not a significant contributing factor to the lethal outcome in the early post injury period (24 hours), but it is undoubtedly a contributing factor for the severe impairment of the brain function indicated through the status of the consciousness.

Keywords: traumatic axonal injury, diffuse axonal injury, closed head injury, β-amyloid precursor protein

O-7

Microscopic hemorrhage in the corpus callosum of a burned body and its forensic significance

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Background. Forensic pathologists often encounter a heat hematoma and a fracture of the skull due to heat-cracking of burned bodies. The corpus callosum that locates in a deeper region of the brain sometimes remains after a dead body was severely damaged by a fire, but findings of medicolegal importance were uncommon in that region, and hemorrhages related to damage by a fire were hardly ever observed macroscopically either. We investigated histologically the corpus callosum of burned bodies and, consequently, found microscopic hemorrhages in that region. Because of no literature on this findings as far as we went through a number of references, we report this subject with its forensic significance.

Material and methods. We investigated the brain of 44 burned bodies which were forensic autopsy cases performed in kochi medical school for four years (2012–2015). Corpus callosum was obtained in 30 of those cases and histologically investigated with the HE staining. The brain tissues were obtained from anterior, middle and posterior regions of the corpus callosum in each of those cases as much as possible.

Results. We found microscopically the parenchymatous hemorrhages only in the corpus callosum of 12 autopsy cases. The hemorrhages were observed sporadically in several tissue sections.

Discussion and conclusions. Microscopic hemorrhages in the corpus callosum were occasionally observed in burned bodies. The cause of those hemorrhages is not clear, but we think that possible factors causing the hemorrhages may be CO intoxication, an electrolyte abnormality which usually occurs by severe heat stroke, head trauma and only a simple post-mortem artifact. Of those factors, some kinds of head injuries that occurred accidentally during a fire seem to be the most probable cause of the hemorrhages, when we consider that head trauma frequently causes hemorrhages in the corpus callosum. The microscopic hemorrhages are presumably ante-mortem finding, and short survival time seems to be affecting the size of hemorrhages.

O-8

Fatal accidents with pedestrian victims: forensic PMCT and autopsy correlation under the virtopsy paradigm

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Background. The virtopsy paradigm is an approach combining several methods for a maximal benefit for the post mortem examination. This study compares findings of both post mortem computed tomography (PMCT) and medicolegal autopsy whereas autopsies were done in the light of previously read and reported PMCT (and not without knowledge of the findings). With that, we were interested in what relevant findings were missed by each of the methods.

Material and methods. The application of state-of-the-art computational tools such as Finite Element Models for the forensic analysis of head and neck injury has been investigated in a number of cases. Namely, a sequential analysis with multi-body simulation that permits to extract the the victim's kinematic followed by the detailed Finite-Element Modelling of specific human body segments, for which tissue level injury thresholds have been previously defined.
Results. For a number of forensic cases the above mentioned computational approach proved to offer substantial additional insight into the injury mechanism analysis in challenging biomechanical areas as for instance by computing the axon strain in case of head trauma or intra-cervical mechanical parameters in case of neck trauma.
Discussion and conclusions. Despite the availability of the presented computational methods, such approach is rarely used in Legal Medicine to date. An access barrier and unpredictable learning efforts may be a reason for that. Therefore this presentation opens the discussion in order to suggest a multi-disciplinarily collaboration platform were forensic specialists can interact with biomechanical researcher.
The application of such methods may be supported by creating a "Biomechanical platform" were the tools and skills are made available for Legal Medicine Institutes. Realising such a platform for implementing numerical computation of head and neck mechanical models into Legal Medicine together with associated training is one of the key objectives of the present efforts.

P-120
The impact of hyperkalemia on death due to extensive trauma of the limbs

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Background. In performing the forensic medical autopsy, determining the specific cause of death is not the only challenge of the forensic doctor, but also the reconstruction of the sequence of path-physiological mechanisms that contribute to the cause of death.
Material and methods. We present a case of 64 year old woman, victim of car accident as a pedestrian, with three days survival after the accident. The clinical examination and the forensic autopsy determined that the violations were located exclusively in the area of the right leg and right half of the pelvic girdle, without damage to any of the internal organs.
Results. The woman was admitted in stable intermediate clinical condition. After 24 hours of intensive care she was transferred to the trauma department, where suddenly cardiac arrest occurred in a few hours.
Discussion and conclusions. The deep analysis of the findings of the forensic medical autopsy and the evaluation of the clinical records indicated strong influence of hyperkalemia as a result of rhabdomyolysis as the cause of death. The mechanism of death is similar to that seen in Crush syndrome, which recently has been described as Compartment syndrome.

P-121
Forensic medical investigation of 22 fatal cases resulting from detonations

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Background. Trauma, resulting from detonations, are frequent observations in the victims of armed conflicts or from accidents within the armed forces. In contrast, explosions are comparably rare events which lead to police investigations and medico-legal assessment in the civilian community.
Material and methods. A retrospective study, involving 20 events leading to 22 casualties investigated at the Institute of Forensic Medicine in Munich between the years 2004 and 2016, was carried out to provide insight in such casework.
Results. Six fatal accidents were related to the occupational handling of explosives and/or gases. Among them were detonations in chemical plants or pyrotechnical facilities, as well as one case of an exploded oxygen container, killing a professional diver. The remaining incidents involved a fatality in the victim's private environment. Three of these events were rated as accidents, whereas suicide was either documented, e.g. in the form of farewell letters, or concluded by the death investigators from the respective circumstances, in nine cases. In four cases, a final clarification was not possible due to insufficient information. The injury patterns in forensic medical assessments predominantly involved burn injuries. Furthermore, blast injuries, including fractures presumably unrelated to heat exposure, loss of body parts and decerebration, were observed. In six of the cases presented here, the decedent had survived his/her injuries for up to eight days. Death resulting from burn disease was stated in all of these cases.
Discussion and conclusions. Death investigations in cases of detonations outside the military community involve accidents in professional and private life, as well as a substantial proportion of suicides. Comprehensive death investigations in the victims of detonations mandatorily relies on the evaluation of medical as well as police reports to clarify the background of the events.

P-122
Influence of temperature on muscle protein degradation to estimate time since death

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Background. Estimation of the time since death, or Postmortem Interval (PMI) is an important task in forensic casework. It can be an essential tool to validate guilt in a crime scene and thus, whether a suspect is acquitted or accused. Various methods to determine time since death are available to date, but the high heterogeneity of cases and of the respective occurring postmortal changes often limit their validity. A new approach was recently described, by analysis of postmortal degradation patterns in skeletal muscle proteins. However, to improve the reliability and accuracy of the method it is inevitable to analyze the effects of certain individual and environmental influences. Ambient temperature is widely suggested to be one of the most important influencing factors on degradation event, and can thus be assumed to also have major impact on muscle protein degradation.
Material and methods. To evaluate this thermal influence, 18 pig legs were stored under laboratory conditions at three different temperatures (4, 21 and 30°C; $n=6$ each). To be able to analyze whether temperature or PMI has a greater influence on protein degradation, the concept of accumulated degree days (ADD) was applied. Samples were taken when the product of temperature and time reached 70 and 200°d. This corresponded to PMIs of 420 and 1200 hours post mortem (hpm) in 4°C environment, 84 and 240 hpm in 20°C, and 56 and 160 hpm in 30°C. At 0 hpm and at each of the calculated time points, small samples were taken from thigh muscles, processed according to standard protocols and analysed by SDS-Page and Western Blot. Additional bands or disappearing signals (compared to the 0 hpm samples) were regarded degradation events.
Results. Analysis of tropomyosin didn't reveal alteration in protein bands, compared to the native form in any of the 4°C and 20°C samples. However, the characteristic double bands could not be detected in all six of the 200°d samples in 30°C. When desmin degradation was investigated, additional bands, that were considered split products, occurred in all three different temperatures. However, again only in the 200°d samples in 30°C a loss of the native band indicated advanced decomposition. Preliminary results from western blots of cardiac troponin T and other proteins suggest similar outcome.