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COLLABORATION BETWEEN MEDICAL EXAMINER AND TOXICOLOGIST – ANALYST

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Summary

Negative effects of the increasing number of toxic substances in the external environment affecting the human organism are highly reflected in everyday forensic practice. In parallel with new circumstances also the methods enabling identification of heterogeneous substances have been developing. Demonstrating evidence is more challenging and sophisticated particularly in cases with proving several xenobiotics including metabolites and their possible interaction. Poison intoxications of unknown origin can represent a diagnostic problem. Consequently close collaboration between involved forensic professionals i.e. medical examiner and forensic toxicologist - analyst is inevitable. The data provided by police investigators are significant as well – investigated circumstances, testimonies and in case of hospitalization detailed data from clinicians. In everyday forensic practice the shortage of medical examiners specialised in toxicology and knowledgeable toxicologists-analysts has been increasingly experienced. The urgent requirement for more specialists arises more frequently not only in suspected fatal poisonings but also in assessing of analysis results particularly in cases of persons directly involved in road traffic accidents, work-related injuries, etc. The number of cases requiring detecting psychoactive substances is also increasing. On the other hand recent experience demands expanding the spectrum and increasing the number of indications of toxicological analyses from medical examiners involved in performing autopsies. At present the Slovak forensic workplaces are in the process of being equipped with instrumentation designed for expanding the spectrum of toxicological analyses and improving their quality. There hence emerges a need for developing the contemporary concept of Slovak forensic toxicology with respect to both organizational and methodological aspects focused on better interaction of activities carried out by medical examiners and toxicologist - analysts. The essential part of developing the coordination of both expert groups is also postgraduate education with an emphasis on improving mutual recognition principles of their work.

Key words: medical examiner – toxicologist – analyst – collaboration – concept of forensic toxikology – postgraduate education

Súhrn

Spolupráca medzi súdnym lekárom a toxikológom – analytikom

Negatívny vplyv zvyšujúceho sa počtu toxických látok vo vonkajšom prostredí pôsobiacich na ľudský organizmus sa stále vo väčšej miere premieta do každodennej súdnolekárskej praxe. Súbežne s novými podmienkami sa vyvíjajú aj metódy umožňujúce identifikáciu cudzorodých látok. Dôkaz je náročnejší a zložitejší najmä v tých prípadoch, v ktorých ide o dôkaz viacerých xenobiotík, vrátane metabolitov a ich prípadnú interakciu. Diagnostickým problémom môžu byť prípady intoxikácie neznámym jedom. Z uvedeného vyplýva nevyhnutnosť úzkej spolupráce zainteresovaných súdnolekárskych pracovníkov: súdneho lekára a súdnolekárskeho toxikológa – analytika. Veľmi významné sú aj údaje od vyšetrovateľa policajného zboru – vyšetrené okolnosti, svedecké výpovede a v prípade hospitalizácie podrobné údaje od klinických lekárov. V každodennej súdnolekárskej praxi sa stále viac pociťuje nedostatok súdnych lekárov špecializujúcich sa na toxikológiu ale aj medicínsky mysliacich erudovaných toxikológov – analytikov. Ich akútna potreba sa stále častejšie prejavuje nielen pri podozreniach na smrteľné otravy, ale aj pri vyhodnotení výsledkov analýzy predovšetkým v prípadoch priamych účastníkov dopravných nehôd, pracovných úrazov a pod. Narastá počet prípadov, v ktorých je potrebné dokazovať psychoaktívne látky. Na druhej strane skúsenosti ukazujú na potrebu rozšírenia spektra a zvýšenia počtu indikácií toxikologicko-chemických vyšetrení zo strany pitvajúcich lekárov. V súčasnosti sa slovenské súdnolekárske pracovíská dovybavujú prístrojovou technikou umožňujúcou rozšíriť spektrum toxikologicko-chemických vyšetrení a zvýšiť ich kvalitu. Vyvstáva potreba vypracovať aktuálnu koncepciu slovenskej súdnolekárskej toxikológie nielen po stránke organizačnej ale aj po stránke metodickej so zameraním na lepšie prepojenie činností vykonávaných súdnymi lekármi a toxikológmi - analytikmi. Neodmysliteľnou súčasťou zlepšovania súčinnosti obidvoch skupín odborníkov je aj postgraduálne vzdelávanie zamerané na lepšie vzájomné poznanie princípov ich práce.

Kľúčové slová: súdny lekár – toxikológ – analytik – spolupráca - koncepcia súdnolekárskej toxikológie – ďalšie vzdelávanie

Soud. Lék., 54, 2009, No. 4, p. 49–51

Forensic toxicology (1) undoubtedly belongs to professionally demanding and closely specialised activities whose results often depend on a high quality and operative collaboration of the involved parties with a dominant managerial role of medical examiner.

Currently, the primary concern of forensic toxicology is not only to prove fatal poisonings; it is used in differential diagnostics of sudden deaths (3), xenobiotics are needed to be proved in both fatal and nonfatal traffic, work-related and non-work-related injuries; sometimes together with prevention in traffic (6), or in a working process. With respect to above-mentioned circumstances the ideal for forensic toxicology is a joint quality base of medical examiners specialised in forensic toxicology and toxicologists – analysts (4). In Slovakia regarding an analytical base taking into account a spectrum of analytical view it is possible to recognize the workplaces located in Bratislava, Košice, Martin and Nitra. Regarding a medical base it is necessary to admit honestly that in our country it is not up to a required standard – medical examiners particularly specialised in toxicology problems in forensic

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medicine are few. Nowadays new forms of comparing experience are regular events – consultations between medical examiners and toxicologists within professional meetings of the Subdepartment of Forensic Medicine, Slovak Medical University.

Collaboration in investigating, providing evidence and assessing the influence of xenobiotics in forensic medicine is a conception being regarded of prime importance (5). This collaboration is required by a rather increasing number of substances with possible toxic effects in a geometric progression; considering frequent effects of several noxae concurrently and their potential interaction, together with the necessity to obtain objective analysis results as soon as possible and with economically acceptable impact (14).

Due to a nature of investigated case the accurate objective of analysis significantly depends on the investigated circumstances, information from the deceased body examiner, clinical findings, autopsy and histopathological findings.

In suspecting intoxication it is necessary to secure available evidence in high quality (tablets, powders, injection syringes and needles, food residues, vomitus, containers with suspected content, etc.). They are secured by an investigator and a crime scene technician in collaboration with a deceased body examiner. Currently all secured evidence materials are forwarded to the Institute for Criminological Expertise, what we consider as not quite appropriate. Part of evidence materials should be delivered to a forensic medicine workplace, where the toxicological analysis should be performed and it is in the interest of an operative orientation within the objective of analysis. Subsequently the analysis results can be confronted among workplaces for the purpose of objectivity (7).

The principal grounds of collaboration between medical examiner and toxicologist – analyst should be a correct choice of sort, amount, manner and adjustment of biological materials, their labelling if necessary.

To determine in collaboration with an investigator which of biological materials have to be analysed with a particular objective. The spectrum of analytical procedures has to be professionally justified, should not be performed in a routine flat way sometimes due to an inconsistent approach to solving the case, sometimes due to a possible aim of deriving profit from them.

Low quality or no collaboration between the involved parties often lapses into useless unjustified economically and thus time-consuming redundant analyses. This occurs in cases without quality performed investigated circumstances, of an inexperienced deceased body examiner, or his inconsistent approach to the case. These are possible reasons when an analyst is supposed to perform an unspecified flat analysis. Specification of the analysis spectrum will prevent not only from overcharging analyses, but also from groundless profiteering, what is possible only within team cooperation.

A wider spectrum of examining biological materials in interesting case reports is inevitable for the needs of forensic medicine and not so much for the needs of bodies active in criminal proceedings and therefore they should not be financially valued due to the expertise. Furthermore, it is important to take advantage of the acquired knowledge in research in the field of a traffic, work-related and other accident frequency rate and to pay higher attention to frequent noxae also in prevention, where together with hard drugs feature various medicaments, in addition to ethanol also higher alcohols (9), inhaled chlorohydrocarbons, ketones, toluene, but also social drugs – nicotine and caffeine which can be responsible for causing accidents due to momentary drowsiness; along with carbon monoxide in breath, pulmonary air, or carbonyl haemoglobin in blood – particularly in cases of motor vehicle fire in order to clarify whether the aggrieved party at the time of fire origin was still alive or not. The findings of a drug always prove either a pathological state or violation of a detected drug. (12).

Regarding the findings of several xenobiotics it is necessary within collaboration to evaluate not only their possible interaction, but to focus the further investigation also on a toxically dominant noxa (11). It is particularly important to interconnect toxicological laboratories with forensic medicine workplaces, which perform toxicological analyses in a reduced extent or none at all; but also with medical examiners specialised in the problems of toxicology including the usage of data from the Toxicological Information Centre.

Poor collaboration of interested parties results in the conclusion of intoxication with an unknown poison in fatal cases; it is characterized by a time-consuming solution, high expenses with a frequent conclusion: unknown cause of death.

Interpretation or assessment of the results of toxicological analysis lays almost exclusively on medical examiner's erudition, however, in a close and irreplaceable collaboration with a toxicologist – analyst, who should not be considered as a service technician, but as a partner of a medical examiner. A spectrum of case assessment is generally completed by a histopathological examination (13), the investigated circumstances, or a clinical examination, if appropriate.

It is necessary to be aware of the fact that with respect to a high sensitivity of current analytic methods the finding of noxa itself does not yet have to represent a cause of death. On the other hand, any finding of noxa can be related to the origin of work-related or nonoccupational injury, road traffic accident (10), but to be also an indicator of the health state of assessed individual and to hold the balance of judging the degree of liability. Beneficial collaboration in toxicological analysis should be reflected on the map of poisonings. There should be decreasingly blank areas.

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ZPRÁVA ZE SJEZDU

XXI. CONGRESS OF INTERNATIONAL ACADEMY OF LEGAL MEDICINE

Sídlom svetového sviatku súdneho lekárstva sa v dňoch 28.–30. mája stal Lisabon, metropola Portugalska, ležiaca pri ústí rieky Tajo do Atlantického oceánu.

Lisabon sa stal hlavným mestom v roku 1255 a bol sídlom monarchie až do vzniku republiky v roku 1910. V pätnástom storočí, keď sa Portugalsko stalo najväčšou námornou mocnosťou, sa stal dôležitým prístavom, centrom svetového obchodu pre šperky z východu a zlato z Brazílie a hlavným mestom Portugalského impéria.

Dnešný Lisabon, kde žije jeden a pol milióna obyvateľov, je nádherným medzinárodným mestom poskytujúcim fascinujúcu kombináciu starej a novej architektúry.

Kongres bol organizovaný pracovníkmi Národného inštitútu súdneho lekárstva Portugalska z troch hlavných centier v Lisabone, Coimbre a Porte na čele s prezidentom Národného inštitútu a zároveň prezidentom International Academy of Legal Medicine prof. Duarte Nuno Vieirom. Miestom kongresových aktivít bola budova Nadácie Calouste Gulbekiana nachádzajúca sa v rovnomennom parku v širšom centre mesta. V priebehu troch dni odznelo 43 plenárnych prednášok, 118 prednášok v 13 sekciách a v 7 sekciách bolo prezentovaných 486 posterov pôvodných prác a kazuistík zo všetkých oblastí súdneho lekárstva ako aj z mnohých hraničných odborov, predovšetkým genetiky a antropológie. Konala sa aj špeciálna sekcia Iberoamerickej akadémie kriminalistiky a forenzných vied. Oficiálnymi jazykmi kongresu boli okrem angličtiny aj španielčina a francúzština, čo spôsobovalo niektorým účastníkom prekvapivé situácie. Kongresu sa zúčastnilo 1135 účastníkov, z toho 63 doprevádzajúcich osôb, zo 78 krajín. Potešiteľnou skutočnosťou je účasť 8 súdnych lekárov zo Slovenska (15 % všetkých súdnych lekárov), ktorí prezentovali 5 príspevkov. Vzhľadom na celkový obmedzený počet prednášok je akceptovanie troch prác na ústnu prezentáciu úspechom. Trochu prekvapivou skutočnosťou je neúčasť českých súdnych lekárov resp. toxikológov.

V dňoch 26. a 27. mája v rámci predkongresových aktivít sa konali medzinárodné postgraduálne kurzy vo forenznej antropológii, identifikácii pri hromadných nešťastiach a identifikácii ľudských pozostatkov po ozbrojených konfliktoch.

V rámci spoločenského programu sa dňa 29. mája konala „Gala dinner“ v dvorane historickej budovy kláštora na okraji Lisabonu, ktorej sa zúčastnilo cca 350 účastníkov. Nevšedným zážitkom boli aj fakultatívne výlety do Sintry – historickej časti Lisabonu, a zachovaného stredovekého mestečka Obido vzdialeného 80 km severne od Lisabonu.

Súčasťou programu bola aj členská schôdza International Academy of Legal Medicine (IALM), kde okrem iných všeobecných bodov bol prednesený návrh na zmenu stanov, ktorých definitívne znenie bude zverejnené na webovej stránke IALM. Prezidentom IALM sa na druhé trojročné obdobie stal opäť prof. Duarte Nuno Vieira.

Posledný deň kongresu sa zišli delegáti jednotlivých krajín na zasadaní European Council of Legal Medicine. Hlavným bodom bola voľba sedemčlenného výkonného výboru, do ktorého boli zvolení delegáti Portugalska, Írska, Francúzska, Švajčiarska, Talianska, Maďarska a Estónska.

Záver kongresu patril srdečnému pozvaniu k účasti na XXII. kongrese IALM v roku 2012 v tureckom Istanbule.

V nedeľu dňa 31. mája 2009 sa asi 100 účastníkov kongresu prepravilo autobusmi z Lisabonu do približne 200 km vzdialenej Coimbry. Tu sa v aule jednej z najstarších univerzít v Európe konal slávnostný ceremoniál odovzdávania čestných doktorátov. Slávnosť začala tradičným sprievodom pracovníkov univerzít oblečených v pestrofarebných tálaroch z historickej knižnice priestranným nádvorím do interiérov univerzity. Čestné doktoráty boli udelené profesorom Angelo Fiori (Taliansko), Bernd Brinkmann (Nemecko), Bernard Knight (Wales) a Enrique Villanueva Caňadas (Španielsko). Po spoločnom obede sa len pomaly napĺňali autobusy, ktoré dopravili najvytrvalejších účastníkov kongresu späť do Lisabonu.

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