

THE CONTRIBUTION OF MEDICO-LEGAL EXPERTISE TO THE INVESTIGATION OF ROAD ACCIDENTS

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Abstract: The activity of legal medicine is an integrated part of the medical assistance provided to the population, but it also represents a link between medicine-police-justice and other fields related to the act of justice when medical aspects have an important role in solving the case.

The conduct of the medico-legal activities within a road accident investigation will include both analysis reports and, above all, medico-legal expertise that are necessary at all stages of the criminal or civil trial.

This activity is particularly complex and with a high degree of responsibility, including on an international level, providing scientific evidences for establishing the legal classifications of the criminal acts committed by the authors of road accidents and for assessing the compensations to be awarded to the victims.

Conclusions. The activity of the forensic doctor in traffic accidents usually includes: the assessment of the severity of the bodily injuries and the physical injuries of the victim, the reconstruction of the mechanisms of traumatic injuries and, less often, the dynamics of the traffic accident. Other evidences of a medico-legal nature useful for the criminal process are: determination of blood alcohol level and the presence of drugs or psychoactive substances, recalculation of blood alcohol level, establishing the state of influence of psychoactive substances or drugs on the ability to drive, the medico-legal expertise of the driving ability.

Keywords: road accidents, medico-legal expertise, blood alcohol level, drugs.

INTRODUCTION

The activity of legal medicine is an integral part of the medical assistance provided to the population in the field of public health, but also a link between the fields of medicine-police-justice and other fields related to the act of justice.

Forensic medicine and medico-legal reports provides medical evidences to the justice system, with the aim of objectifying and quantifying the medical aspects of legal cases and presenting them as scientific evidence to judicial bodies.

In addition to the on-site investigation and the forensic investigation, the medico-legal expertise will have a special importance in the judicial investigation of road accidents and the results of the medico-legal acts are often decisive, from the point of view of evidences and probation, for establishing the final verdict of the cases and the level of severity of the criminal penalty.

Medico-legal expertise has become very complicated in recent years due to the huge volume

of medical information that needs to be analyzed: files with a lot of documents, multiple and long-term hospitalizations in different medical units [sometimes from several countries], medical procedures and particularly complex and regularly repeated specialized investigations, etc., all of which require a coherent synthesis from the forensic doctor, both from a medico-legal perspective and of the causality and legal implications of the case.

The role of the forensic doctor in the criminal investigation regarding road accidents is mainly given by the assessment of the seriousness of the bodily injury and the physical and mental damage of temporary or permanent nature for the victims who survive the accident, sometimes supplemented with medical recommendations regarding the long-term treatment applied and with reassessments aimed for the estimation of late treatment prospects that can still be used to recover the sequelae.

The medico-legal activity is thus directly involved in the diagnosis and prophylaxis of traumas of

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any kind, in the analysis of medical elements with legal repercussions but also in that of the circumstances in which bodily injuries occurred.

In the case of deceased victims, legal medicine is responsible for transporting and preserving the corpses, establishing the cause of death and the traumatic mechanisms following the autopsy, preparing the preliminary burial documentation and handing over the deceased to the relatives; after the preparation of the necropsy / medico-legal expertise report, in the framework of new subsequent expertise, the medico-legal investigation of the entire evidentiary material regarding the place where the road accident occurred or the performance of complex interdisciplinary medico-legal/technical/criminological expertise may be requested.

At the same time, the medico-legal necropsy expertise involves a very high degree of responsibility because it will establish the cause of death, the link or causality between road trauma and death, the mechanism of production of traumatic injuries as well as the degree of contribution to death of any chronic pathological conditions.

In certain cases with a particular evidentiary complexity, the medico-legal expertise can be the only scientific discipline that can offer logical explanations of some inconsistencies between the evidence in the criminal file or between the elements of the investigation and the evidentiary material available to the magistrate.

DRIVING ABILITY

The current legislation regarding the ability to drive on public roads has gaps, in the sense that only professional drivers can be assessed in the Medical Commissions for Traffic Safety belonging to the Ministry of Transport.

Under these conditions, the medico-legal expertise of people with a view to reacquiring their driving license frequently presents methodological difficulties, the diagnostic standards from the minimum legal norms regarding the physical and mental abilities required to drive a motor vehicle being supplemented with some limiting or repetitive medical recommendations regarding the specialized diagnosis and treatment followed by these patients and the periodic reassessment of their health status [1].

There are different medical standards for the driving ability of amateur and professional drivers, which makes it difficult to conduct the medico-legal expertise of these people, especially since there is still

no framework methodology in forensic medicine regarding this new expertise in the medico-legal activity.

For amateur drivers [group I and group II] there is a very general scale of minimum standards regarding the physical and mental skills required for driving a motor vehicle.

At the same time, for transport safety positions [for professional drivers] there are different medical examination scales depending on the level of demand of the position held; for these patients, the degree of permissiveness from the point of view of occupational medicine is inversely proportional to the level of neuro-psychic demand required for the professional activity carried out daily by the respective person [2].

The lack of a unified methodology regarding the expertise of people for determining the ability to drive a car causes difficulties both in terms of establishing, on a scientific basis, the medical criteria applicable to each individual case, but also the medical safety measures that can be recommended in an individualized manner for this category of patients.

Thus, it is necessary to correlate the concepts of periodical medical control and therapeutic stabilization of the disease respectively with the legal medical standards regarding traffic safety, with medical safety measures [at least in terms of the therapeutic control of the disease] and with the legal ban on driving a motor vehicle by a person under the influence of certain medicinal substances with a psychoactive effect or contraindicated in driving motor vehicles on public roads.

In the medico-legal assessment of the ability to drive, some auxiliary medical criteria derived from the activity of the transport safety medical commissions can be used, such as the periodic medical reassessment of the expert or the restriction of driving under the influence of drug therapies that can alter the ability to drive a car.

DRIVING UNDER THE INFLUENCE OF ALCOHOL OR DRUGS

Driving vehicles under the influence of alcohol or drugs is one of the factors that significantly contribute to the occurrence of road accidents.

In the case of alcoholemia, in Romania the legal limit is the alcoholic concentration of more than 0.80 g/l of pure alcohol in the blood [art. 336 of the Criminal Code] [3].

In the case of the consumption of prohibited drugs or psychoactive substances, in order to establish whether the act constitutes a crime, it is necessary to establish the state of influence at the time of the road accident.

For this, a medico-legal expertise will be made that will establish the level of their influence on the ability to drive a car at the time of the road accident depending on the concentration of the drug and its metabolites in the blood and urine [4].

In recent years, the number of medico-legal toxicological examinations to determine the state of influence of drugs or prohibited psychoactive substances has grown exponentially, but there is still no legal standard for an assessment of the state of influence based on some maximum permissible limits of the concentration of the main drugs found in use and of their metabolites.

We believe that the regulation of some legal limits regarding the maximum allowed concentration of drugs or metabolites in blood and urine [as exists in the vast majority of EU states] would greatly improve the objectivity of medico-legal expertise and would make the legal process more efficient, primarily for the criminal aspect but also for the civil one.

THE CONTRIBUTION OF MEDICO-LEGAL EXPERTISE TO THE LEGAL MANAGEMENT OF ROAD ACCIDENTS

In recent years, the concept of resilience has been developed, which has progressively evolved from the initial meaning derived from the Latin *resilire* [to *resilire*] to a much more complex meaning that involves the ability to anticipate risks and make the necessary changes before the occurrence of major losses [5].

Resilience involves a fused logic, i.e. a fusion of information from different fields that through correlation will provide interdisciplinary logical conclusions, the result being a complex multidisciplinary expertise that will take into account all evidence from different fields of scientific probation [6].

Understanding the notion of resilience implies, on the one hand, the ability to anticipate unexpected adverse events through a mechanism of predictive logic of possible negative outcomes and the application of measures or actions carried out “in advance” that are intended to prevent the occurrence of undesirable consequences [6] but also the idea of reconstructing the dynamics of the road accident production through “fuzzy logic”, i.e. through the logical synthesis of

scientific evidence provided by experts from different fields [criminologist, medical examiner, auto technical expert, etc.] [6,7].

In this sense, there have been cases in which the lack of collaboration between experts [forensic expert, auto technical expert, medical examiner] in the criminal investigation of road accidents led to important errors of legal logic; in these situations, the performance of interdisciplinary expertise would have been needed.

In recent years, the introduction of artificial intelligence has become particularly useful both for the investigation of the crime scene and for the medical and forensic management of road accidents through: preliminary technical auto expertise, the virtual reconstruction of the road accident, the triage of victims prioritized according to severity criteria and types of traumatic injuries, transport and assignment of patients with serious injuries to appropriate hospitals [with available specialists, who have specific investigative methods and who have free beds] [8-10].

CONCLUSIONS

Medico-legal activities represent particularly complex probation methods, with a very high degree of responsibility, including on an international level, which later have major effects on the legal classification of criminal acts and in determining the amount of civil compensation.

The activity of the forensic doctor in traffic accidents usually includes: the assessment of the severity of the bodily injury and the physical injury of the victim, the reconstruction of the mechanisms of traumatic injuries and, less often, the dynamics of the traffic accident.

Other evidences with a medico-legal nature useful for the criminal process are: determination of blood alcohol level and the presence of drugs or psychoactive substances, recalculation of blood alcohol level, establishing the state of influence of psychoactive substances or drugs on capacity to drive, the medico-legal expertise of driving capacity.

In many road accidents, a decisive factor in the occurrence of the accident is the chronic diseases of the driver of the vehicle, therefore we believe that the expertise of the driving ability should be performed routinely for all the authors of serious road accidents.

Regarding blood alcohol and drug testing, we believe that it should be performed shortly after the accident for all persons hospitalized following road

accidents, both drivers and pedestrians.

The lack of standards regarding the newly medico-legal expertise [such as the ability to drive a car or the state of drug influence] causes non-unitary evaluations of cases and implicitly the occurrence of legal uncertainties, the extension of the deadline for resolving these files and the useless burden of the judicial system.

Also, the deadline for completing the medico-legal documents is a particularly important factor for the administration of justice; the unjustified extension of the duration of medico-legal activities can lead to the fulfillment of the statute of limitations for a criminal act and finally to the promotion of criminality as a social phenomenon.

Conflict of interest

The author declares that he has no conflict of interest.

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