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FORENSIC ESTIMATION OF MEDICAL AID RENDERED TO THE PATIENTS DIED WITH TRAUMATIC BRAIN INJURY (ON EVIDENCES OF FORENSIC EXPERTISE)

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Summary

Traumatic brain injury is a general reason of death. The objective: to conduct a forensic analysis of the defects of medical care and clarify their causes in TBI's victims. The research was done according to expert panel evidences (EPE) of several bureaus of forensic medical examination for ten years (2006-2016).The examinations related to the 6129 corpses of TBI victims. 30 EPE examinations were selected for the further analysis. the data were distributed on year, forensic bureau, date of death, time of death, the presence or absence of comorbidity, sex and age of the deceased, date and time of injury, date and time of ambulance arrival, type of medical establishment (municipal clinical, central district hospital, regional hospital, specialized, e. g. research institute of neurosurgery), the time of delivery to the hospital, time of the medical aid start, blood pressure systolic/diastolic, heart rate, patient's condition, consciousness, presence of described injuries, examination by experts, additional examinations, operation, its time, clinical diagnosis (basic), clinical diagnosis (secondary), defects of medical care, their number, type, cause, timeliness of medical care, presence/ absence of cause-effect relation of defect with adverse effects. The data obtained were subject to statistical analysis with standard methods of descriptive statistics. Gross defects of medical

care which in some or other way influenced the result were found in 13 cases, i.e. almost half of cases. In 7.7% of cases took place improper provision (action); the failure to provide medical attention (inactivity) were observed in 92.7% (12 cases).

A direct cause-and-effect relationship between defect of medical care and adverse outcome was found in 53.84% of cases.

Key words: traumatic brain injury, expert panel evidence, forensic medical examination.

Introduction. Present day, according to Ukrainian official statistics, traumatic brain injury (TBI) is a cause of fatalities for more than 11 thousand people annually. 55% of them die at pre-hospital and 41% at hospital stage. This excesses hospital mortality rate in comparison with developed countries by more than 1.5 times [1-2]. As TBI dominates in the structure of total traumatism, logically, that it is one of the most important aspects of forensic research [3]. However, if the problem of the delivered medical care accuracy according to Ukrainian law in force is decided by forensic experts [4-6], in Europe and USA it is done exclusively by lawyers. In addition, examinations at TBI are held by medicolegists (neuroscientists) [7-9]. It should be noted that a high percentage of forensic examinations in "medical matter" in the cases of fatal TBI, mostly, is associated with the presence of emergency conditions that require medical personnel immediate actions. In Ukraine there is a common opinion that doctors are wrong mostly in the cases of the absence of technical capacity in the hospitals, or when their qualification, medical specialization and experience did not allow to provide appropriate assistance. To decide the pressing issue of the medical care rendered and its quality, in Ukraine, particularly in the cases of TBI, they should, above all, to understand not only the defects but also their causes.

The objective: to conduct a forensic analysis of the defects of medical care and clarify their causes in TBI's victims. The research was done according to expert panel evidences (EPE) forensic medical examinations of the State Establishment " Central Bureau

for medicolegal investigations of the Ministry of Health Care of Ukraine", Kyiv municipal clinical office of forensics, Zhytomyr regional bureau of forensic medical examinations.

Materials and methods. Forensic medical EPE examinations in “medical matters” for ten years (2006-2016) made in the State Establishment " Central Bureau for medicolegal investigations of the Ministry of Health Care of Ukraine", Kyiv municipal clinical office of forensics, Zhytomyr regional bureau of forensic medical examinations have been analyzed. The examinations mentioned related to the corpses of TBI victims. 30 EPE examinations were selected from the total number (6129) of examinations in “medical matters”.

In the course of investigation the data were distributed on the following criteria: year, forensic bureau, date of death, time of death, the presence or absence of comorbidity, sex and age of the deceased, date and time of injury, date and time of ambulance arrival, type of medical establishment (municipal clinical, central district hospital, regional hospital, specialized, e. g. research institute of neurosurgery, traumatology, etc., early treatment clinic, institutions of medical emergency (IDS), the time of delivery to the hospital, time of the medical aid start, blood pressure systolic, blood pressure diastolic, heart rate, patient's condition, consciousness, presence of described injuries, examination by experts, additional examinations, operation, its time, clinical diagnosis (basic), clinical diagnosis (secondary), defects of medical care, their number, type, cause, timeliness of medical care, presence/ absence of cause-effect relation of defect with adverse effects.

The data obtained were subject to statistical analysis with standard methods of descriptive statistics using EXEL.

Results and discussion

In the statistical analysis of EPE forensic medical examinations conducted in the bureaus mentioned, the following facts have come to light. During the examinations the experts have found gross defects of medical care which in some or other way influenced the result. They amounted 13, i.e. almost half of cases. Defects’ 7.7% were those of improper provision (action); there was 1 case of wrong medical diagnosis as a result of the survey data underestimation, and defects in the form of failure to provide medical attention (inactivity) were observed in 92.7% (12 cases).

A more detailed examination of defects found that a defect in the form of absence of instrumental research methods took place in 30.77% (4 cases), delays in the provision of medical care - in 23.08% (3 cases), wrong diagnosis/uncertain diagnosis - in 15.4% (2 cases),

assembly of defects in the form of lack of instrumental methods of research and lack of or incomplete medical treatment occurred in 23.08% (3 cases). In these cases adequate anti-edematous, anti-inflammatory therapy, and therapy to normalize blood circulation provided by protocols of care was not rendered; wrong diagnosis together with the lack of instrumental methods of examination occurred in 7.67% (1 case). It should be noted that in these cases the wrong treatment as a defect of medical care may not have been in the first place since in the expertise learnt fatal TBI with emergency conditions were present and that require, above all, appropriate examination and urgent surgery .

When considering the causes that led to the defects it was found that isolated underestimation of the examination data and underestimation of additional examinations was observed in 30.77% (4) in each case. Further, 7.67% (1) were cases with several reasons: a) underestimation of survey data in conjunction with the underestimation of additional examinations data; b) underestimation of examination data in conjunction with the negligent attitude to patients who had unkempt appearance (homeless person, unpleasant smell of body, odor of alcohol, etc.); c) underestimation of additional examinations data together with a patient's late appeal for medical care; d) underestimation of examination data in conjunction with the underestimation of the additional examinations data and lack of technical capacity in the hospital; e) underestimation of examination data in conjunction with the underestimation of additional examinations data and negligent attitude to unkempt patients.

In assessing the care timing, it should be noted that untimely medical care was provided to patients in nearly half the cases of all expertise under analysis - 40% (12 cases).

In the cases studied, a direct cause-effect relation between defect of medical care and adverse effects was found in 53.84% (7 cases), and indirect - in 46.16% (6 cases).

A more detailed analysis showed that all cases of direct cause - effect relation were present because of defects in the form of inactivity (failure to provide medical attention)- 57.14% (4 cases) with mismatch of clinical and legal diagnosis; 28.57% (2) - with incomplete match; and only 14.29% (1) - with a match. In 85.71% (6) cases there was no surgery on therapeutic grounds, and in 14.29% (1 case) it was carried untimely.

It is significant that in 57.14% (4) of cases the patients were in a state of moderate severity and only in 28.57% (2) of cases they were in critical condition.

In most cases - 85.71% (6) - there were no additional examinations or their underestimation; in 71.42% (5 cases) patients had WNL systolic and diastolic blood pressure and heart rate. Besides, 71.42% (5) of the patients were conscious, and in most cases - 57.14%

(4)- the patients' condition was estimated as a moderate one. That is, the patients in the time of admission to the hospital were stable. In 85.71% (6) patients the injuries were not fully disclosed, and in 14.29% (1) they were not disclosed at all. Significantly, in most cases, - 85.71% (6) the patients had no comorbidities and all were of working age (under 61 y.o).

Interestingly, that in all these cases the medical staff had sufficient experience and qualification categories (not below the first), there were no inexperienced professionals among them (interns, trainees). However, 28.57% (2 cases) of patients have been administered at emergency hospitals, 28.57 (2 cases) – at district hospital and nearly a half - 42.86% (3 cases) – municipal hospitals of large cities.

In analyzing the cases with indirect cause - effect relation it was found that defects in the form of inactivity (failure to provide medical care) were observed in 5 cases, and inadequate provision (action) - in 16.67% (1 case). There were 66.67 % (4) of cases with incomplete adequacy of clinical diagnosis and forensic medicine diagnosis. Only 33.33% of cases, i. e. in 2 persons the diagnosis coincided with that of legal medicine. In half of the cases, 50% (3), there was no surgery on therapeutic grounds and in 66.66% (2) of the patients it was done untimely.

In 83.33% (5 cases) were no additional examinations or their underestimation. In 83.33% (5) patients the injuries were not fully described, while 16.675 (1) – they were not described at all. It should be emphasized that in all cases the patients had none comorbidities and the vast majority of them were of working age (40 years).

In all these cases, medical persons also had enough experience and qualification categories (at least equal to the first) and there were no inexperienced professionals (interns, trainees) among them. Half of the cases took place in city hospitals, 3 cases took place under the conditions of large cities, and in the other half of cases the level of the hospital was not specified, either it was out-patient clinic.

Thus, analyzing the cases of defective medical aid either in the presence of direct or indirect cause-and-effect relationship with patient's death, we can conclude that, unfortunately, in Ukraine there is a low level of medical care and banal poor examination of the patients and underestimation of their condition, and delayed medical aid. Contrary to a popular belief that medical errors are made by inexperienced and young professionals from remote areas without appropriate conditions for the provision of qualified medical care, skilled enough health workers have miscarriages.

In addition, the defects of medical care, and nearly all cases under analyses are the cases of the failure to provide medical aid, that is, in fact, medical staff inactivity, when a patient needed certain measures, in most of the cases take place in municipal hospitals, especially major Ukrainian cities, where the appropriate conditions for the delivery of medical care, skilled professionals of different profiles, and medical care protocols in neurosurgery exist/ This tells about the negligence of the medical staff, because in such circumstances doctors could and should have prevented the fatality.

Conclusions:

1. In analyzing expert panel evidences (EPE) rough defects of medical care have been discovered in almost half the cases. In some way or another they had an impact on the result.

2. Untimely medical care was delivered in almost half the cases under analysis.

3. In all the case under analysis a direct cause-and-effect relationship between defect of medical care and adverse outcome was found in 53.84% of cases and indirect – in 46.16%.

4. Unfortunately, standards of medical care are poor enough because of patients' under-examination and underestimation of their condition and delayed medical care. Contrary to a popular belief that medical errors are made by inexperienced and young professionals from remote areas without appropriate conditions for the delivery of qualified medical care, skilled enough health workers have miscarriages.

5. Defective medical care, and almost all the cases analyzed are the case of failure to provide medical attention, i.e. medical workers inactivity, when a patient needed some urgent measures in the majority of cases took place at municipal hospitals (especially at large Ukrainian cities) while there were the proper conditions for medical aid delivery, qualified specialists, rescue protocols in neurosurgery. This speaks for medical personnel blunder, as at the conditions existing the doctors could and had to forestall fatality but they did not.

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