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G64 Medico-Legal Aspects of Posttraumatic Gastroduodenal Ulcers

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On the basis of presented data attendees will be well acquainted with the important medicolegal and clinical characteristics of posttraumatic gastroduodenal ulcers that can be very serious and even fatal complications of various types of injuries.

The presentation will impact the forensic community by the fact that in cases with development of posttraumatic stress ulcers medicolegal expertise of injuries may be very complicated, especially if fatal complications of stress ulcers occur (hemorrhage, perforation), since in such cases the causative relationship between the primary injuries and fatal outcome should be explained. On the other hand, the important influence on humanity may have data that indicate the most risky injuries concerning development of stress ulcers, as well as the importance of their adequate prevention during the treatment of injured individuals.

The posttraumatic gastroduodenal ulcers (PGDU), so called stress ulcers, represent very important, sometimes life threatening or even fatal complication of various types of injuries. Therefore, a broad autopsy study was performed in order to analyze frequency and other important forensic and clinical characteristics of PGDU.

The study was divided in a retrospective part (period 1996-2000, 5197 autopsies), and a prospective part (period 2004-2005, 2356 autopsies). In the retrospective part of the study 157 autopsy cases with posttraumatic gastroduodenal ulcers were observed (experimental group), and 730 cases without posttraumatic ulcers (control group). In the prospective part of the study 45 autopsy cases with posttraumatic ulcers were analyzed (experimental group), and 212 cases without posttraumatic ulcers (control group).

Data were obtained from autopsy protocols, anamnestic data from the deceased's family members and accessible medical records. Degree of the injury severity was presented by ISS value. Furthermore, in the prospective part of the study histological examination of small vessels of the abdominal organs was performed in order to investigate influence of atherosclerosis on development of PGDU. The obtained results were analyzed by means of appropriate statistical methods.

In both retrospective and prospective part of the study, the percentage of occurrence of PGDU was approximately 17% among all cases with potentially risky injuries. Posttraumatic ulcers are more common in males (around 77% of all individuals with stress ulcers), as well as in older age (over 50 years). The outliving period ranged between 24 hours and 25 days, but it was often no longer than 12 days (76%). From the preventive point of view, it is important to point out that 16.5% out of all PGDU in the retrospective part, and 15.5% in the prospective part of the study, was found at autopsy in the injured individuals who outlived trauma less than 48 hours.

The manner of trauma was mostly accidental with the vast majority of traffic accidents (66%), and with the highest absolute number of pedestrians (66). The main causes of death in the experimental group were as following: damage to the vital brain centers (64%), chest injuries (13%), spinal cord injuries (6%), burns (6%) and complications of injuries. The most of injured persons with posttraumatic ulcers sustained multiple injuries, that is poly-trauma. Isolated craniocerebral injury was found in 25% cases with post-traumatic ulcers. In majority of cases with mechanical injuries, the calculated ISS value was ≥ 16 .

The most risky injuries for development of PGDU appeared to be isolated spinal cord injuries. Namely, among all cases with isolated spinal cord injuries, PGDU were diagnosed in 50% in the retrospective part, and in 25% in the prospective part of this study. The other types of injuries with high risk for development of PGDU were burns and scalds, isolated mechanical craniocerebral trauma, and mechanical polytrauma. This investigation shows that small vessels changes of the stomach and other abdominal organs are not very important factor in pathogenesis of posttraumatic ulcers, while the most important suppose to be functional disturbances of microcirculation caused by the primary injuries.

The stomach was the most frequent localization of PGDU, mostly with numerous lesions (so called erosive gastritis). Duodenum was the most frequent site of solitary ulcers, as well as exacerbated chronic peptic ulcers.

Complications of PGDU were found at autopsy in 40% of all cases with stress ulcers, mostly in form of hemorrhage, and rarely as perforation, and penetration. In 20% out of all 157 cases with PGDU in the retrospective part of the study, the postmortem diagnosed complications of PGDU were proclaimed to be a cause of violent death in the autopsy protocols (mostly mutually with primary injuries).

In the medicolegal expertise of cases with PGDU, three main problems usually appear: (1) estimation of severity of primary injuries, (2) establishing of causative relationship between the primary injuries and lethal outcome in cases with fatal complications of PGDU (mostly hemorrhage with resultant exsanguination), and (3) possible accusation of treating physicians for medical negligence.

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