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CHANGES OF CHOLESTEROL ESTER CONTENTS IN HUMAN ADRENAL TISSUE AT THE EARLY STAGES OF ANTEMORTEM PERIOD

ABSTRACT. Background. Microscopic and morphometric studies of adrenal tissue showed changes in their morphological and functional activity depending on the duration of fatal injury. Source for the adrenal hormones synthesis is cholesterol released from the esters by the action of the enzyme cholesterol esterase. **Objective.** Quantitative determination of cholesterol esters in the adrenal tissue of people who died in the result of traumatic factors in different time intervals: immediately after the injury, in a short period of time (from several to tens of minutes), after 1-2 hours. **Methods.** There were 40 studies conducted, 30 of which - for the determination of cholesterol esters in the adrenal tissue in early antemortem period in violent death, and 10 – in those who died from coronary heart disease (sudden death). Quantitative content of cholesterol esters was determined with the help of the original program and patented process. **Results.** The content of cholesterol esters in human adrenal tissue differs depending on the duration of a lethal mechanical trauma. When compared with a control group (those who died in the result of sudden death), its content in the persons who died immediately after the injury were not statistically different ($p>0.05$), but they do differed in the persons who died 1-2 hours after the injury ($p<0.05$), and tended towards statistical significance in those who had died in some tens minutes ($0.05<p<0.1$). Comparing to the group of persons who died immediately after the injury, the difference in the persons who died some tens minutes later ($p<0.05$) and 1-2 hour after the injury ($p<0.001$) is statistically significant. **Conclusion.** The presence of significant differences indicates that content of cholesterol esters in the adrenal tissue can be used to specify the duration of injury

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Bilyakov AM. [Changes of cholesterol ester contents in human adrenal tissue at the early stages of antemortem period]. *Morphologia*. 2013;7(4):7-10. Ukrainian.

References:

1. Teodoresku- Ekzarku I, editor. [Shock]. Bucharest; 1980. p. 177-81. Russian.
2. Churchill PF, Kimura T. Topological studies of cytochromes P-450_{scc} and P-450_{11 beta} in bovine adrenocortical inner mitochondrial membranes. Effects of controlled tryptic digestion. J Biol Chem. 1979 Oct 25;254(20):10443-8. Cited in: PubMed; PMID: 489606.
3. Tamaoki B. Steroidogenesis and cell structure. Biochemical pursuit of sites of steroid biosynthesis. J Steroid Biochem. 1973 Jan;4(1):89–118. Cited in: PubMed; PMID: 4574429.
4. Lopukhin YuM, Archakov AI, Vladimirov YuA, Kogan EM. Kholesterinoz [Cholesterolosis]. Moscow: Meditsina; 1983. p. 163-71. Russian.
5. Paschenko YuV. [Morphological and functional criteria for life duration of injured with mechanical trauma]. In: [Role of modern diagnostic methods in treatment and rehabilitation of patients: Proceedings of the 3rd Conference of Kharkiv regional clinical hospital]; 2004; Kharkiv. Kharkiv: 2004. p. 50-1. Russian.
6. Bilyakov AM. [Software processing of the results of thin layer chromatography]. In: [Actual problems forensic science, education and practice: materials of Ukrainian conference]; 2012; Alushta. Alushta; 2012. p. 92-4. Ukrainian.