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## VERACITY EXTENT OF EXPERT'S CONCLUSIONS IN FORENSIC MEDICAL EXAMINATION ON CAUSES OF DEATH FROM CARBON MONOXIDE POISONING

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**Background:** Recently the main direction in improvement of the forensic diagnostics of the death cause has become the research of maximum number of diagnostic features that are found in every kind of death. Diagnostics of the cause of death from carbon monoxide poisoning is one of the topical problems of forensic science and practice. However, the existence of a large number of diagnostic features and using of modern instruments and techniques are leaving it impossible to estimate the diagnostic value of each feature which leads to subjectivity of expert's conclusions about the cause of death.

**Aim:** To improve the diagnostics of the death cause from carbon monoxide poisoning by means of mathematical justification of expert's conclusion on the cause of death.

**Tasks:** To measure frequency of external and internal signs of death from carbon monoxide poisoning; to determine the significance coefficient of each feature.

**Methods:** Morphological, macro- and microscopic, toxicological, statistical, mathematical, using Bayes' postulate.

**Material:** male and female corpses of different age groups which died from carbon monoxide poisoning.

**Results:** It was found during the study that the majority of deaths from carbon monoxide poisoning is composed by middle aged employable men (31-60 years).



Most poisonings are accounted for the next months: October (12%), December (15%), January (13%), February (11%), March (8%). Two-thirds of the victims were in a state of alcohol intoxication of varying severity at the time of death, what contributes to death and should be taken into account when assessing its reasons. The average lethal concentration of carboxyhemoglobin in blood is 51% for men and 50,7% for women. The most frequently encountered are the following features: pink coloration of the internal organs and muscles (93.7%), pink coloration of blood (96.1%), liquid blood (99%), hyperemia of internal organs (94.6 %), hyperemia and edema of the soft meninges and brain substance (86.3%), subpleural hemorrhage (87.8%), subepicardial hemorrhage (87.3%), saturated corpse spots (80.5%). By means of statistical probabilities of carbon monoxide poisoning signs it is possible to establish the conclusions veracity about the cause of death, using suggested table of diagnostic coefficients. If the sum of statistical probability of diagnostic features is 95% or higher than the expert's conclusion on the death cause should be considered as reliable, if coefficients' sum 75-95% then experts' conclusions are possible, when the same sum is below 75% - doubtful.

**Conclusion:** Using of the proposed method for determining the reliability of expert's conclusions will provide an opportunity to increase the objectivity and accuracy of forensic medical diagnosis of death due to carbon monoxide poisoning.