



Spectral change of the degree of depolarization of laser radiation scattered by the myocardia tissue to diagnose the prescription of death coming

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Background: Methods of establishing the prescription of death coming widely used in modern forensic medicine, are subjective in many ways and depend on many factors of the environment and causes of death.

Objectives: The aim of our study was the possibility of establishing prescription death changes the polarization properties of laser radiation passing through the cut myocardial tissue with mechanical asphyxia and blood loss.

Material and methods: The investigations were dedicated to the spectral change of the degree of depolarization of laser radiation scattered by the myocardial tissue to diagnose the prescription of time of the death coming. Sections of the myocardial tissue of people who died as a result of mechanical asphyxia (A) – 42 cases and massive blood loss (B) – 40 cases were taken into consideration.

Results: Higher level of the intensity of laser radiation is characteristic of polarization images of the biological tissues of type “A” in comparison with the similar polarizing visualized structures of the biological tissue of type “B”. The revealed specific characteristics of a transformation of polarized layer radiation that passed through the blood saturated laser of the myocardial tissue may be associated with the following features of its morphologic structure. The myocardial tissue, its parenchyma is made up of small-scale structures, after the passage of the laser beam the coordinate distribution within the limits of the shear plane is formed in the shape of small-scale sites. Similar tendencies of a change of the two-dimensional and three-dimensional structure of the depolarization degree were detected for laser radiation scattered by the myocardial tissue.

Conclusion: The defined time ranges enable to diagnose the time of death coming via a statistical analysis of the depolarization of laser radiation by the myocardial tissue 60 hours by the type A, and for the myocardial tissue of type B – 72 hours.