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Estimation of human cardiovascular circulatory system

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This work is devoted to the research and development of methods and tools for the analysis of human cardiovascular circulatory system, early prediction of the probability of sudden cardiac arrest, as well as analysis of various cardiac arrhythmias based on the dynamics of the 24h heart rate.

The approach is applied to 24h — 48h Holter recording of heart period variability obtained by examination of patients with normal state of cardio-vascular system and patients with the pathologies such as ischemic heart dilatation with circulatory deficiency, paroxysmal tachycardia, subaortic stenosis with circulatory deficiency.

The software for processing and analyzing output of 24h HR and generating diagnostic conclusion about existing pathologies of the circulatory system and the status of the regulatory reserves of the human body was developed.

Clinical studies using the elaborated computer-aided diagnostic system showed a high predictive value of the developed methods for identifying patients with various stages of hypertension.