

THE ANALYSIS OF ECHOCARDIOGRAPHIC PARAMETERS OF N. ZEALAND RABBITS` ANESTHETIZED WITH COMBINATION OF KETAMINE AND XYLAZINE BEFORE AND AFTER MYOCARDIAL INFARCTION

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Abstract. In recent years, cardiovascular research has been increasingly used in studies of rabbit heart model. Rabbit heart models are suitable for research because it is relatively inexpensive, and the rabbit heart has many similarities to the human heart. In order to obtain reliable instrumental test results a brief anesthesia is necessary due to physiological properties of the rabbit. The objective of this study was to evaluate echocardiographic parameters for N. Zealand white rabbits without anesthesia and anesthetized with combination of ketamine and xylazine before and after myocardial infarction. We used 32 N. Zealand white rabbits weighing 3.5 ± 0.5 kg. The purpose of this research was to measure the parameters of the rabbit heart with and without anesthesia: heart rate (HR), ejection fraction (EF), and left ventricular (LV) morphometric parameter of the systolic and diastolic (LV) function markers. Doppler echocardiography was performed including the M - mode.

The results obtained show some differences between parameters heart rate (bpm), mitral annulus amplitude (M-mode), tricuspid annulus amplitude (M-mode) of anesthetized rabbits and without anesthesia: heart rate ($175,66 \pm 30,16$ bpm; and $234,57 \pm 38,16$ bpm) respectively; right ventricle ($5,52 \pm 0,79$ mm and $6,74 \pm 0,52$ mm) and left atrium ($8,4 \pm 1,08$ mm and $9,33 \pm 0,66$ mm) respectively, $p < 0,001$; left ventricular internal diameter of diastole was reduced ($12,62 \pm 1,52$ mm and $14,01 \pm 1,59$ mm), $p = 0,03$. The mean values of all echocardiographic parameters of the rabbits anesthetized with combination of ketamine and xylazine after myocardial infarction are slightly lower in comparison with the results obtained from the healthy rabbits. The values of ejection fraction and left ventricular internal diameter in diastole (mm) showed statistically significant differences what proved myocardial infarction.

The obtained values were compared with the results obtained by other authors and a conclusion was made that using the different combination of anesthetic agents in echocardiography the data obtained was statistically reliable.

Keywords: echocardiography, myocardial infarction, laboratory rabbit, ketamine–xylazine anesthesia.