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**MODERN VISION OF IMPLEMENTING
INNOVATIONS IN SCIENTIFIC STUDIES**

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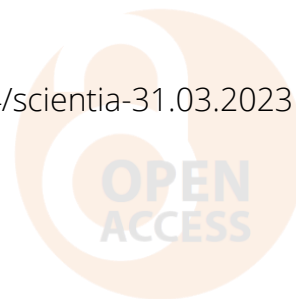
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РОЗРОБКА ПРОГРАМНОГО ЗАБЕЗПЕЧЕННЯ ДОДАТКУ, ЯКИЙ МОЖЕ ПРОРАХУВАТИ ВИГРАШНІ ХОДИ У ГРІ «ШАШКИ»
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SECTION 17.

MEDICAL SCIENCES AND PUBLIC HEALTH

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DIAGNOSIS OF MYOCARDIAL CONTUSION IN PATIENTS WITH THORACIC TRAUMA AGAINST THE BACKGROUND OF POLYTRAUMA

Background. Myocardial contusion is the most common type of heart injury in blunt chest trauma. Studies have shown that the frequency of cardiac injuries ranged from 20% to 76% in blunt chest trauma. In autopsy studies performed in cases of sudden death after blunt trauma to the chest, cardiac contusion has founded with a frequency of 10-16%, and with a frequency of 16-76% in clinical studies. Myocardial contusion aggravates the course of thoracic trauma and contributes to the growth of all types of mortality in polytrauma. Myocardial contusion limits the compensatory capabilities of the body of patients in critical conditions through a decrease in the minute volume of blood circulation. This pathology contributes to the development of secondary respiratory failure and threatens the development of extremely dangerous arrhythmias. Therefore, it requires considerable vigilance and timely diagnosis from specialists [1, 2]. We set the purpose of our work to determine the most simple and informative early signs of the presence of myocardial contusion in victims of thoracic trauma, which can be extremely widely used in hospitals with various instrumental diagnostic capacities.

Materials and methods. We conducted a retrospective study by analyzing 300 case histories of patients from the polytrauma department with a thoracic trauma component, who got with anesthesia care in the period 2016-2022. We calculated the mechanisms of injury, patient complaints, the presence of signs of chest damage, the results of auscultation and radiographic control, results of immediate ECG examination and subsequent ECG monitoring, indicators of central hemodynamics, including the level of central venous pressure, results of transthoracic ultrasound examination and determination of the concentration of cardiac troponins in the blood plasma, as well as the activity of creatine phosphokinase and its myocardial fraction, protocols of pathological examinations. The final diagnosis of myocardial contusion necessarily based on the results of transthoracic ultrasound and markers of myocardial damage, namely the content of cardiac troponin I in the blood plasma.

Research results and their discussion. We identified the most common signs of myocardial contusion. They were as follows: indication of the appropriate mechanism of chest injury (for example, steering impact), the presence of signs of damage to the chest (especially on the left side and in the sternum), early detection of splitting and/or widening of the QRS complex of the ECG in leads V1-V3, the presence of arrhythmia (especially extrasystolic), rapid

"fluctuations" in blood pressure indicators, increased central venous pressure or a normal level of central venous pressure against the background of arterial hypotension and II-IV degree blood loss. Chest pain is not necessarily associated with myocardial damage. The most informative ECG changes then detected in the earliest hours after the thoracic injury. Incomplete (much more often) or complete blockade of the right leg of the bundle of His can be registered in almost 80% of patients with myocardial contusion. However, the duration of these changes is often very short-lived. We detected both elevation and depression of the ST segment in the right chest leads of the ECG. Central venous pressure was very sensitive to fluid load. It grew rapidly after intravenous administration of a relatively small volume of fluid. Multiple fluctuations in the level of central venous pressure during the day were characteristic of patients with signs of myocardial contusion. An increase in central venous pressure was often associated with a subsequent decrease in the oxygen saturation index of peripheral arterial blood. A decrease in the cardiac output fraction of less than 50% was not characteristic of myocardial contusion. However, we still ascertained the presence of hypodynamia of a certain section of the myocardial wall.

Conclusion. We presented the simplest diagnostic presence signs of which should cause a serious suspicion of myocardial contusion in patients with thoracic trauma. In all cases, the doctor's tactics should focus on patient safety. Patients with suspected myocardial contusion require observation in the intensive care unit, electrocardiographic monitoring and monitoring of leading indicators of central hemodynamics and peripheral arterial blood oxygen saturation.

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