

Cardiac Arrest after Cardiac Surgery

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Abstract : Objective. The aim of the study was to optimize the protocol of cardiopulmonary resuscitation (CPR) after cardiovascular surgical interventions. Methods. The experience of CPR conducted on patients after cardiovascular surgical interventions in the Department of Intensive Care and Resuscitation (DIR) of the Republican Specialized Scientific-Practical Medical Center of Surgery named after Academician V. Vakhidov is presented. The key to the new approach is the rapid elimination of reversible causes of cardiac arrest, followed by either defibrillation or electrical cardioversion (depending on the situation) before external heart compression, which may damage sternotomy. Careful use of adrenaline is emphasized due to the potential recurrence of hypertension, and timely resternotomy (within 5 minutes) is performed to ensure optimal cerebral perfusion through direct massage. Out of 32 patients, cardiac arrest in the form of asystole was observed in 16 (50%), with hypoxemia as the cause, while the remaining 16 (50%) experienced ventricular fibrillation caused by arrhythmogenic reactions. The age of the patients ranged from 6 to 60 years. All patients were evaluated before the operation using the ASA and EuroSCORE scales, falling into the moderate-risk group (3-5 points). CPR was conducted for cardiac activity restoration according to the American Heart Association and European Resuscitation Council guidelines (Ley SJ. Standards for Resuscitation After Cardiac Surgery. Critical Care Nurse. 2015;35(2):30-38). The duration of CPR ranged from 8 to 50 minutes. The ARASNE II scale was used to assess the severity of patients' conditions after CPR, and the Glasgow Coma Scale was employed to evaluate patients' consciousness after the restoration of cardiac activity and sedation withdrawal. Results. In all patients, immediate chest compressions of the necessary depth (4-5 cm) at a frequency of 100-120 compressions per minute were initiated upon detection of cardiac arrest. Regardless of the type of cardiac arrest, defibrillation with a manual defibrillator was performed 3-5 minutes later, and adrenaline was administered in doses ranging from 100 to 300 mcg. Persistent ventricular fibrillation was also treated with antiarrhythmic therapy (amiodarone, lidocaine). If necessary, infusion of inotropes and vasopressors was used, and for the prevention of brain edema and the restoration of adequate neurostatus within 1-3 days, sedation, a magnesium-lidocaine mixture, mechanical intranasal cooling of the brain stem, and neuroprotective drugs were employed. A coordinated effort by the resuscitation team and proper role allocation within the team were essential for effective cardiopulmonary resuscitation (CPR). All these measures contributed to the improvement of CPR outcomes. Conclusion. Successful CPR following cardiac surgical interventions involves interdisciplinary collaboration. The application of an optimized CPR standard leads to a reduction in mortality rates and favorable neurological outcomes.

Keywords : cardiac surgery, cardiac arrest, resuscitation, critically ill patients

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