

Hospital Cardiorespiratory Arrest: A Challenge at Present

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Cardiorespiratory arrest (CRP) is the sudden cessation of cardiac output and spontaneous and effective ventilation. This constitutes a public health problem with a high mortality rate - lethality. According to North American records, about 450,000 people have a PCR annually [1].

Hospital cardiac arrests represent a major problem, since between 0.4% and 2% of hospitalized patients require cardiopulmonary resuscitation. The different services that a hospital presents, the diverse clinical conditions of the patients, as well as the morbidity that the treatments to which the patients are subjected make this situation a challenge for the team of professionals that it faces [1].

Hospital cardiorespiratory arrest (HCPP) occurs more frequently than out-of-hospital cardiorespiratory arrest (PCREH) and is associated with a worse prognosis and a worse percentage of survival, despite the fact that the hospital environment should be the best scenario to survive a CRP. PCRH occurs in adults between 1 and 5 out of every 1,000 admissions, and in children it has been 0.005 per bed per year [2].

Unlike PCREH, the main cause in adults is atherosclerosis coronary artery disease, in patients with in-hospital arrest the patients are older, with added pathologies. In the pediatric group, the main cause is respiratory failure accompanied by severe hypoxia, it is rarely of cardiac origin, it only occurs in children with congenital heart disease, and in the postoperative period of cardiovascular surgery [2].

The most common forms of presentation in adults are asystole and pulseless electrical activity, so survival is worse [1].

In a published study, with the data from the American National Registry of RCP (NRCPR), on almost 37,000 episodes of HRP, showed that the initial rhythm in adults is in about 70% of cases analysis or electrical activity without pulse (AESP), the FV/TVSP is in a percentage close to 25%. Likewise, it showed that the overall survival of the HCR is low, around 18%, being 36% in the case of FV/TVSP and 11% in the case of asystole/EAPS [3].

In children, bradycardia with progression towards asystole is the typical terminal rhythm. Tachycardia and ventricular fibrillation have been reported in 15% or less of children or adolescents victims of cardiac arrest [1].

The HCRs have slightly better results than those extrahospital, with restoration of circulation in 44% of patients and survival of 17% [3].

In-hospital cardiac arrest is a potentially preventable cause of morbidity and mortality. Cardiorespiratory arrest of patients in hospitalization areas without monitoring is not always a sudden and unpredictable event. These patients frequently have slow and progressive physiological deterioration, hence the importance of early detection and adequate treatment to prevent cardiorespiratory arrest.

The warning signs that must be taken into account are cardiac arrhythmias, severe hypotension, sudden changes in heart rate, alterations in the level of consciousness, respiratory silence, "gaspings" or agonizing breathing, cyanosis and the pallor. Health personnel must be trained to recognize and act in this medical emergency [4].

In the event of a HHRP situation, the health personnel who identify the situation, taking into account the clinical diagnosis of the presence of alarm signs, the absence of central pulses, the identification of fatal arrhythmias or cardiac rhythms characteristic of the CRP in the monitor, should be activate the emergency code and simultaneously start with the basic life support maneuvers, until the arrival of the hospital emergency team or other qualified personnel for the continuity of the resuscitation process with advanced life support maneuvers, with special emphasis on early defibrillation in case the initial rhythm of cardiorespiratory arrest is due to this procedure (FV/TV without pulse) [5].

To provide quality CPR it is important to ensure an effective heart rate (120 beats per minute), cardiac compressions of adequate depth (5 cm in children over 8 years and adults, 3.75 cm in children under 8 years, 2.5 cm in neonates and infants), passive chest decompression and minimize interruptions in compressions and resuscitation.

The most important factors that determine survival and quality of life after resuscitation of a CRP are: the patient's previous clinical status, the cause and the triggering mechanism of the same, the cardiorespiratory arrest time until the start of maneuvers of cardiopulmonary resuscitation (when basic resuscitation begins within the first 4 minutes and advanced resuscitation within the first 8 minutes improves survival rates), time and quality of resuscitation maneuvers and post-resuscitation intensive care which are aimed at improving the neurological, cardiovascular and systemic response triggered by ischemia/reperfusion [6].

The decision making to suspend the resuscitation maneuvers is always difficult, but according to the norms, these must stop when: the patient recovers spontaneous circulation and breathing, it is confirmed that the PCR was produced as a consequence of the natural evolution of a process incurable, there is confirmation that the resuscitation maneuvers were initiated with a delay of more than 10 minutes, except in cases of drowning, accidental hypothermia or barbiturate poisoning, after 30 minutes of having correctly initiated the resuscitation maneuvers and there are no signs of cardiac electrical activity [7,8].

Despite the great achievements in terms of resuscitation, there are still great difficulties in the knowledge and management of cardiorespiratory arrest that result in an increase in the morbidity and mortality of hospitalized patients. Perhaps this may be related to the lack of interest in the subject by health professionals and especially those who are not linked to the emergency and emergencies services. In addition, due to the lack of programs for updating, training and training in medical, nursing and health technology careers. Therefore, we must correct these difficulties and continue to promote the training of medical and paramedical personnel who are facing this emergency situation.

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