

Cardiopulmonary resuscitation and ethics

Ressuscitação cardiopulmonar e ética

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INTRODUCTION

The earliest documentation of cardiopulmonary resuscitation (CPR) dates to the Old Testament, which describes how the prophet Elisha resuscitated an apparently dead child by blowing air into his mouth.⁽¹⁾ Modern CPR began in 1960 with the landmark study by Kouwenhoven, Jude, and Knickerbocker, which reported combining closed chest compression, mouth-to-mouth breathing, and external defibrillation.⁽¹⁾ Since that time, CPR and advanced cardiac life support (ACLS) techniques have saved many lives but have also raised several ethical dilemmas. Consent for CPR procedures is universally presumed. However, there are times when patients' right to receive CPR contrasts with their caregivers' impression that such treatment is not medically indicated. Conversely, some patients receive resuscitation that they would not have wanted. Decisions regarding resuscitation and the duration of resuscitative efforts often entail several crucial ethical issues. This article will focus on the ethical dilemmas related to the need to make critical decisions in emergency or acute settings.

Risks and benefits of resuscitative efforts

Since 1900, cardiovascular disease has been the leading cause of death.⁽²⁾ Cardiopulmonary resuscitation is a labor-intensive, high-cost endeavor, undertaken over an estimated 800,000 times annually in the United States.⁽³⁾ Although reports on the survival from in-hospital and out-of-hospital cardiac arrest vary widely,⁽⁴⁻⁶⁾ several factors have been identified to be associated with outcome. The most important factor determining survival is the time elapsed since arrest (down time).⁽³⁾ Recent studies estimate that the mortality rate increases 3% for each minute without CPR and 4% for each minute without defibrillation.^(7,8) This public health problem spawned the development of out-of-hospital cardiac care in the 1960s and its continued growth to the present.^(9,10) Risk-adjusted survival after in-hospital cardiac arrest has significantly improved over the past decade.⁽⁷⁾ Several epidemiological studies have identified factors associated with lower rates of survival, including delays in defibrillation, off-hours or unwitnessed arrests. Furthermore, substantial variation in survival outcomes exists across hospitals, suggesting that some facilities may be instituting better strategies for resuscitation care.^(7,11)

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Early reports from emergency cardiac care systems documented that the most common initial arrhythmias encountered in cases of out-of-hospital cardiac arrest were ventricular fibrillation (VF) or ventricular tachycardia (VT).^(11,12) Survival rates from out-of-hospital cardiac arrest range from 2% to 26%, with the wide range ascribed to variations in the population reported.⁽¹³⁾ Ventricular fibrillation and VT are "treatable" arrhythmias, and restoration of spontaneous circulation is not unexpected; this is in contrast to the results of resuscitative efforts when non-ventricular arrhythmias are encountered. The poor outcome of out-of-hospital cardiac arrest caused by non-ventricular arrhythmias has led to both renewed interest into the causes of such arrhythmias and in a reevaluation of therapeutic interventions.^(14,15) The historically dismal outcome of these patients has led to suggestions that resuscitative interventions be withheld from patients with out-of-hospital cardiac arrest who do not have rhythms that are responsive to electrical cardioversion or counter shock.⁽¹⁶⁾ However, patients who experience a witnessed out-of-hospital arrest and who are found to be in asystole do not have a uniformly fatal outcome.^(17,18) In 1998, Stratton supported the practice of initiating resuscitative efforts in patients found to be in asystole, particularly if the collapse was witnessed.⁽¹⁹⁾ Improved outcomes have been demonstrated for witnessed arrests in which early CPR and ACLS protocols were instituted.^(20,21) The location is also an important factor, largely owing to the more rapid institution of CPR for witnessed arrests outside of the home.⁽²⁰⁾

The underlying medical condition of the patient is another important factor affecting outcome.^(22,23)

Based on these data, several authors have suggested withholding resuscitative efforts for patients in certain clinical settings with a low likelihood of successful resuscitation (i.e., apneic, pulseless >10 minutes before EMS arrival, no response to ACLS, asystole or pulseless electrical activity, absence of pupillary reactions, preexisting terminal disease). Knowledge of data regarding resuscitation outcomes in various clinical settings is crucial when one is making evidence-based decisions regarding the risks and benefits of attempting CPR and ACLS.⁽²²⁻²⁶⁾

Ethics and cardiopulmonary resuscitation

Cardiopulmonary resuscitation was developed for acute illnesses, such as trauma or myocardial infarctions. Actually, CPR is universal in application, regardless of the underlying cause of the cardio-respiratory arrest. There is

growing concern that a disproportionate amount of health care budgets is spent on CPR and ACLS, particularly when the results are viewed in light of the aging of our population and the high percentage of deaths that occur in intensive care units. Additionally, several authors have shown that physicians are unable to predict patient preferences regarding treatment decisions.⁽²⁷⁻²⁹⁾ Because of the inherent difficulties in knowing the treatment preferences of an individual patient, resuscitative measures are undertaken for most patients with cardiac arrest, unless a documented advance directive exists.^(28,29) The concern that CPR should be given more appropriately to a selected number of patients who would certainly benefit from it is a key problem in daily emergency physician practice. There is a widespread belief that people with reduced quality of life due to chronic diseases do not want aggressive, life-sustaining treatments, even in an emergency scenario.⁽³⁰⁻³³⁾ By definition, the act of restoring life is a decision that must be made rapidly by emergency physicians, and unfortunately it is often based on suboptimal amounts of available information. In some countries, competent patients have the right to refuse CPR in-hospital by using a code and outside the hospital by wearing specific signs, such as a bracelet.

The capacity to provide life-sustaining treatments, including CPR, has been accompanied by several issues about how to make decisions regarding their use and how to handle their cost.⁽³¹⁻³⁴⁾ The behaviors of emergency physicians are frequently linked to their fear of litigation or criticism.^(34,35) Several authors assume that physicians have no obligation to provide, and patients and families have no right to demand, medical treatments that are of no demonstrable benefit.⁽³⁶⁻³⁸⁾ Respect for patient autonomy does not require that the physician must initiate procedures that are medically futile or not appropriate.⁽³⁷⁾ Until formal policies are developed by governing organizations in emergency medicine, emergency physicians must make the choices they judge to be most appropriate in the specific critical situation encountered. Moreover, there is worldwide agreement over the need to perform more selected and appropriate resuscitations because of the substantial resources that are invested during and after CPR.^(38,39) The European Commission has ruled that the patient has the right of self-determination, including the right to refuse unwanted therapies. However, it does not specify the need to use advance directives or a proxy to achieve this goal in non-competent patients. If physicians in Europe are going

to use patient outcomes or quality of life in the decision making process about whether or not to provide CPR, it is important to have an appropriate understanding of the terminology. Quality of life is, according to the WHO, a part of the definition of the word "health". According to Curtis, it is "a holistic, self-determined evaluation of satisfaction with issues important to the individual". All researchers confirm that it is influenced by many factors, and, consequently, many authors use the more restrictive meaning of "health-related quality of life". Patients with a lower current quality of life want fewer life-sustaining therapies. Moreover, all patients receiving CPR, even if their previous quality of life was not compromised, embrace the risk that if circulation is restored, significant anoxic brain injury could result.

Appropriate care

The concept of medical futility became popular with the growth of high technology in medical science, which created concern that this technology would simply delay death for short periods rather than restore patients to health. Before 1987, the concept of futility was unrecognized. In 1995, 134 articles on the topic were published, and in 1999, 31 new items were found in MedLine by searching for the keyword "futility".^(39,40) The term futility is fraught with difficulties in its definition and interpretation. There is no consensus among physicians about the definition of futility.⁽⁴¹⁾ In fact, there are a variety of definitions, including physiologic futility (failure to produce a physiologic response), quantitative futility (the likelihood of benefit to the patient falls below a minimal threshold), and patient-centered futility (failure to produce effects that the patient can appreciate).⁽⁴²⁾ Non-beneficial or having a low likelihood of success are the concepts most used in futility discussions. Appropriate care is what ethicists are looking for, and it has been identified by experts looking at the care provided in the ICU.⁽⁴³⁾ A treatment that does not improve the patient's prognosis, comfort, well-being, or general state of health should be considered futile, or even better, not appropriate. Healthcare practitioners may interpret inappropriate interventions as those that carry an absolute impossibility of a successful outcome, a low likelihood of success or survival, or a low probability of restoration of a meaningful quality of life. Schneiderman defined futility as "an effort to achieve a result that is possible but that reasoning or experience suggests is highly improbable and cannot be systematically

produced".⁽⁴⁴⁾ The issues surrounding CPR have been the primary stimulants for the discussion of medical appropriateness. Among a group of European and Israeli ICU clinicians, perceptions of inappropriate care were frequently reported and were inversely associated with factors indicating good teamwork.⁽⁴⁵⁾ Physicians have no ethical obligations to offer disproportionate or non-appropriate interventions to their patients because they can exercise their professional judgment in assessing if a treatment request is appropriate to reach a therapeutic goal. If requests are not reasonable, the physician should not feel obliged to provide them;⁽⁴⁵⁾ furthermore, given limited resources, it is ethically justifiable to limit access to treatments that are expensive and offer minimal benefit.⁽⁴⁶⁾ Decisions about appropriateness involve moral judgments about right or good care.⁽⁴⁷⁾

The lack of knowledge of ethics and laws is likely to exert a cautionary influence and create exaggerated concerns about ethical and legal liability. In 1996, physicians working in California offered CPR to all patients, regardless of acquired benefits and despite a hospital policy that allowed them to not offer cardiopulmonary resuscitation to everyone. Most of the 69 intensivists interviewed believed that CPR should be offered to all patients. However, ethicists have argued that CPR should not to be given to patients who are unlikely to benefit.⁽⁴³⁾ Physicians experience considerable uncertainty about what is and is not ethically and legally permissible.⁽⁴³⁻⁴⁷⁾ A valid legal reason to withhold CPR and ACLS measures is a clearly written advanced directive that states the wishes of the patient or the determination of the primary physician that resuscitation is neither desired nor appropriate. Unfortunately, this is not a standard of practice in Europe, especially in Southern European countries.

CONCLUSION

Decisions regarding resuscitation and the duration of resuscitative efforts are commonly encountered aspects of emergency medicine and often entail several crucial ethical issues. Positive and negative consequences should be carefully considered when making such decisions. More research is needed on the effects and benefits of cardiopulmonary resuscitation. Cost containment is needed, and the appropriate use of medical resources is a goal of emergency medicine. Particular attention should be paid to the well-being of the survivors.

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