Cardiopulmonary resuscitation: discrepancy between the actual cardiopulmonary resuscitation and the documentation in the medical record

Lara A. Torreão, Amélia G.A.C. Reis, Eduardo J. Troster, Gabriel Oselka

Abstract

Objectives: to describe the characteristics of the patients who were not resuscitated in a pediatric university hospital. To characterize the data recorded on medical charts regarding resuscitation, and to evaluate ethical and legal aspects of cardiopulmonary resuscitation.

Methods: retrospective study of 176 deaths occurring in a 1-year period. Charts were reviewed, and the information recorded was compared to oral reports by physicians who participated in the patient's resuscitation.

Results: during the study period, 176 deaths occurred; 47 (26.7%) were not submitted to cardiopulmonary resuscitation as reported by the physician who was present when the patient died. Two patients were excluded, because their charts were lost. Prior to death, 64.4% (29/45) received mechanical ventilation, and 48.5% (33/45) received inotropic support; 60% (27/45) of the deaths occurred in the intensive care unit. The most common diagnosis at admission was sepsis in 28% (13/45) and pneumonia with respiratory arrest in 27% (12/45). The most common underlying medical conditions were malignancies, in 28.8% (13/45). From the 45 charts reviewed, 40 had information concerning cardiopulmonary resuscitation. According to the information in the charts, 11 patients (27.5%) were declared dead without resuscitation efforts, and 29 (72.5%) were submitted to cardiopulmonary resuscitation without improvement in vital signs.

Conclusion: there was a discrepancy the reports by physicians and the records concerning cardiopulmonary resuscitation. This may be due to the fear of legal implication if cardiopulmonary resuscitation is not performed. However, in patients with very poor prognoses, the decision to withhold cardiopulmonary resuscitation is ethically justifiable.

Introduction

The ethical aspects involved in cardiopulmonary resuscitation (CPR) have been widely studied in other countries, mainly in the adult population, in terms of indication and prognosis. The highest rate of success for this procedure occurs in adults with primary cardiorespiratory arrest. In children, CPR is usually used...
as a secondary resource. Usually, CPR in children is associated with organic failures, or with an underlying disease. Its efficacy is low.

Some studies address survival rate after CPR in pediatric inpatients. In São Paulo, in 1998, Reis studied post-CPR survival and prognosis in a tertiary university hospital. That author found a survival rate of 16.3% at discharge, and of 10% after 6 months. In the United States, the survival rate found was similar to that of Brazil. Slomin, in 1997, found a survival rate of 13.7% at discharge, and Torres, in 1997, found 10% of survival in a 1-year period. Other authors who observed better results refer only to cases of isolated respiratory arrest. In this specific situation, the survival rate varies from 44.4 to 67.5% at discharge.

In a tertiary level teaching hospital like ours, cardiorespiratory arrest is a frequent event, since we treat many chronic patients with severe disease and poor prognosis. In Brazil, almost all inpatients with cardiorespiratory arrest are resuscitated; however, despite the absence of formal protocols with a "do-not-resuscitate order" for terminal patients, some children are not resuscitated. The ethical and legal implications of nonresuscitation must be broadly discussed. In the United States, formal nonresuscitate orders are less frequent in children than in adults. Only one-third of deaths are preceded by a nonresuscitation order in pediatrics, while in adults, this occurs in 40 to 70% of the cases. However, studies in the United States, Europe, and Japan showed that most deaths in pediatric intensive care and neonatal intensive therapy units are preceded by an active process of limitation or withdrawal of treatment.

The objective of this study was to describe the characteristics of nonresuscitated patients in a tertiary pediatric teaching hospital, to characterize how the nonresuscitation report was registered on the medical record, and to assess the ethical aspects involved in cardiopulmonary resuscitation.

Population and methods

Location and period of the study: Children’s Institute, Hospital de Clínicas, Medical School, Universidade de São Paulo (USP). This is a tertiary level pediatric teaching hospital with 122 inpatient beds. The study was carried out from July 1997 to June 1998.

Description: We carried out a prospective, exploratory, and observational study from which two works originated: the first with the objective of evaluating the prognosis and survival of patients after cardiorespiratory arrest, and the second (the present study) with the aim of analyzing data from nonresuscitated patients.

Therefore, the population considered in the present article consists of nonresuscitated patients. The verification of CPR procedures was systematically performed by the investigators for all children who died through an interview with the physician who assisted the patient during the cardiorespiratory arrest. This interview was carried out in the first 24 h after the event; a standardized questionnaire was filled out. After 1 year, medical records were reviewed in order to compare the information given by the doctor during the interview and the data listed on the medical record concerning cardiorespiratory arrest. We reviewed death summary records and the last page describing the evolution of the patient on the day of death. In addition, we investigated the prescription of drugs used for resuscitation, as well as the death certificate completed by the nursing staff.

The project was announced to the staff both orally and in writing, and one of the two investigators was called whenever there was a case of cardiorespiratory arrest. An active search was carried out daily in the morning and in the late afternoon, in order to avoid losses. The study protocol was approved by the Research Ethics Committee at Hospital de Clínicas (USP) and by the Ethics Committee at the Children’s Institute.

Data collected: Demographic data, interventions of the preinstalled advanced life support, diagnosis at admission, underlying disease, place of death, and death record.

Results

During the 1-year study 110,660 patients were seen at the Children’s Institute and 6,024 were admitted to the hospital. There were 176 cases of cardiorespiratory arrest, out of which 129 (73.3%) were and 47 (26.7%) were not submitted to CPR maneuvers.

The study population comprised the 47 children who were not resuscitated according to the information given by the physician who assisted the patient during the cardiorespiratory arrest. Two cases were excluded because their medical records were not complete. Coherence analysis was performed in 45 patients; however, we were not able to obtain information concerning cardiorespiratory arrest or CPR for 5 patients. As for gender, there was a predominance of male patients (60%; 27/45). The distribution according to age group appears in Table 1. Hospital stay varied from 1 to 107 days, with a mean of 12.5 days, and a median of 4 days.

All the patients were monitored at the moment of death. A member of the healthcare team was always present at that moment. Twenty-nine patients (64.4%) were receiving mechanical ventilation, and 48.9% (23/45) were taking vasoactive drugs (Table 2).

Regarding diagnosis at admission, the most frequent was sepsis, in 28.8% (13/45), followed by bronchopneumonia/respiratory insufficiency in 26.6% (12/45), and hepatic insufficiency in 15.5% (7/45). The most frequent
underlying disease was cancer-related in 28.8% (13/45), followed by hepatic disease 20% (9/45) (Table 4). Sixty percent (27/45) of the patients died at the intensive care unit (ICU); 15.5% (7/45) at specialty wards; 13.3% (6/45) in the emergency room; 8.8% (4/45) at the semi-intensive care unit; and 2.2% (1/45) in the nursery.

Table 2 - Features of the population in relation to the life-advanced support used prior to death (n=45)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes (n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrest witnessed by a member of the health team</td>
<td>45 (100)</td>
<td></td>
</tr>
<tr>
<td>Monitoring with electrocardiography</td>
<td>45 (100)</td>
<td></td>
</tr>
<tr>
<td>Mechanical ventilation</td>
<td>29 (64.4)</td>
<td>16 (35.6)</td>
</tr>
<tr>
<td>Vasoactive drugs</td>
<td>23 (48.9)</td>
<td>22 (51.1)</td>
</tr>
</tbody>
</table>

Death was recorded in the charts of 40 nonresuscitated patients. In 11 (27.4%) this information was expressed as "patient was declared dead," and in 29 (72.6%) as "usual resuscitation maneuvers were performed, with no success." None of these 29 charts which mentioned the performance of CPR maneuvers had information concerning prescription of drugs for resuscitation or records by the nursing staff concerning the maneuvers carried out.

Table 3 - Diagnoses of 45 non-resuscitated patients at admission

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepsis</td>
<td>13</td>
<td>28.9</td>
</tr>
<tr>
<td>BCP*/Respiratory failure</td>
<td>12</td>
<td>26.7</td>
</tr>
<tr>
<td>Hepatic failure</td>
<td>7</td>
<td>15.5</td>
</tr>
<tr>
<td>Nephritic failure</td>
<td>3</td>
<td>6.7</td>
</tr>
<tr>
<td>Cardiac failure</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>Seizure</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>Others</td>
<td>6</td>
<td>13.3</td>
</tr>
</tbody>
</table>

*BCP: Bronchopneumonia

Discussion

The present study provides novel quantitative data showing the discrepancy between the actual performance of CPR and the corresponding data recorded in the medical charts. In the 1960s, CPR techniques were improved and standardized. The aim of CPR is to avoid the early death of patients whose respiratory and circulatory functions have been seriously affected, by reestablishing circulation, breathing, and neurological functions after clinical death due to an acute event.

The introduction of CPR was followed by ethical issues, mainly concerning the indication of this procedure. The technique is supposed to be used in patients with sudden cardiorespiratory arrest, with great probability of reversion. In terminally ill patients, resuscitation may be prejudicial, futile, and even cruel. It frequently lengthens the process of death and it may sometimes determine a persistent vegetative state, since the heart tolerates hypoxia for a longer period than the brain. Unfortunately, patients in such state are not usually offered the option of a more dignified death. CPR should be used in cases for which its indication is appropriate, that is, when the functional recovery of the individual is viable.

When appropriate, CPR is a procedure for which consent is presumed and universally accepted. The family has a crucial role in the discussion concerning the possible indication of do-not-resuscitate policies, since they should participate in final decisions. Generally, the family is not aware of the actual success of resuscitation, or of its failures, mainly regarding irreversible neurological lesions.

In some terminally ill patients, resuscitation is unnecessary, and it may hurt the ethical principle of non-maleficence, which concerns the avoidance of suffering caused by the artificial lengthening of life without perspective of cure or recovery. Not reanimating patients in these conditions is a morally and ethically supported behavior; in
spite of this, it has not been institutionalized in Brazil, and its legal acceptance is not unanimous. When life cannot be preserved, relief from suffering becomes the main goal, and do-not-resuscitate policies become highly desirable.

In advance do-not-resuscitate orders, supported by ethical principles, are used in several countries. The patients and people in charge (e.g. the family) have the right to accept or refuse treatments, based on their autonomy and self-determination. Informed consent is a collective decision, whose aim is to ensure that what is best for the patient will prevail. Based on the principle of primum non nocere, health professionals must, above all, cause no injures; in countries that adopted nonresuscitation protocols, there is the responsibility to ensure that the patient is being right treated. According to Hook & Koch, several studies show that "if the family perceives the attempt of reanimation as too heavy a burden, it is licit that they insist that the physician interrupt these attempts, and it is licit for the physician to obey".13

There is also the fear of being sued for acts of omission. Article 135 of the Brazilian Penal Code (which dates from 1940) describes the crime of omission: "Not assisting, whenever possible and without personal risk, an abandoned or lost child, an invalid or injured person, in abandonment, or in serious and imminent danger; or not to request, in such cases, the help of public authorities." Several jurists and physicians understand that not performing CPR maneuvers, under any circumstance, would constitute an act of omission. If we consider that the terminally ill patient is undergoing an inexorable process of death, there is no way to save this person. The process cannot be reversed. Therefore, as we see it, article 135 does not apply to all terminally ill patients.

In the state of São Paulo, a recent law was passed concerning the rights of those who use the healthcare system. According to this law, the patient has the right "to refuse painful or extraordinary treatments that aim at lengthening life".14 This offers legal support to an act which has been accepted by the medical profession and by society at large in other countries for several years. It is known that in countries that adopted nonresuscitation protocols, there were no significant changes in the indications for CPR; the real improvement was in terms of communication between the medical team and the family.15

Another situation that frequently leads to mistakes is interpreting the value attributed by several religions to the preservation of life as an indication, in the case of terminally ill patients, to use all the resources available, always. A text by Pope Pio XII, addressed to health professionals, states that "if the family perceives the attempt of reanimation as too heavy a burden, it is licit that they insist that the physician interrupt these attempts, and it is licit for the physician to obey".13

### Table 4 - Underlying disease of non-resuscitated patients at admission (n=45)

<table>
<thead>
<tr>
<th>Underlying disease</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncologic</td>
<td>13</td>
<td>28.8</td>
</tr>
<tr>
<td>Hepatic</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Infectious</td>
<td>3</td>
<td>6.6</td>
</tr>
<tr>
<td>Neurologic</td>
<td>3</td>
<td>6.6</td>
</tr>
<tr>
<td>Hematological</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>Gastroenterologic</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>Pneumologic</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Cardiologic</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Reumatologic</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>No underlying disease</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>45</td>
<td>100</td>
</tr>
</tbody>
</table>

Before the law, of being able to show responsibility for a correct medical action. Even in cases in which the physician in charge had recorded that the patient was "hospitalized for terminal care; family is aware," the information recorded by physician who diagnosed the death shows that "the usual resuscitation maneuvers were performed, without success".

The notion that the patient should be resuscitated is very strong in Brazil. It is based on a wrong interpretation of article 57 of the Brazilian Code of Medical Ethics (CEM), which forbids physicians from "not using all available means of diagnosis and treatment in favor of the patient." Several physicians interpret this article literally, understanding that it is their duty to always use all the available means of treatment, which in this case means to perform CPR. It seems anti-ethical and even cruel to perform measures called "heroic" in a person whose death is the natural evolution of a disease process; certainly this does not mean to act "in favor of the patient." According to Martin, article 57 has a formulation that allows us to question whether controlling suffering through technology and delaying death is always profitable for the patients.

In this study, most of the patients who were not resuscitated presented neoplasias (30%) and liver disease (20%) as their underlying diseases. Sepsis, broncho-pneumonia, and respiratory insufficiency accounted for two thirds of the diagnoses at admission. Similar data have been reported in the literature. Our patients were severely ill; about 50% were in the ICU, requiring mechanical ventilation and vasoactive drugs.

According to Hook & Koch, studies show reluctance on the part of health professionals to discuss the issue of resuscitation with their patients, partly due to the fact that they themselves may feel that they are giving up on the patients; or because they feel uncomfortable dealing with matters of life and death. To these factors, we could also add the fear of being sued for acts of omission. As shown in our study, 72% of the reports in the medical charts were incorrect concerning the procedures performed after the cardiorespiratory arrest. This may translate into insecurity before the law, of being able to show responsibility for a correct medical action. Even in cases in which the physician in charge had recorded that the patient was "hospitalized for terminal care; family is aware," the information recorded by physician who diagnosed the death shows that "the usual resuscitation maneuvers were performed, without success".

The notion that the patient should be resuscitated is very strong in Brazil. It is based on a wrong interpretation of article 57 of the Brazilian Code of Medical Ethics (CEM), which forbids physicians from "not using all available means of diagnosis and treatment in favor of the patient." Several physicians interpret this article literally, understanding that it is their duty to always use all the available means of treatment, which in this case means to perform CPR. It seems anti-ethical and even cruel to perform measures called "heroic" in a person whose death is the natural evolution of a disease process; certainly this does not mean to act "in favor of the patient." According to Martin, article 57 has a formulation that allows us to question whether controlling suffering through technology and delaying death is always profitable for the patients.

In the state of São Paulo, a recent law was passed concerning the rights of those who use the healthcare system. According to this law, the patient has the right "to refuse painful or extraordinary treatments that aim at lengthening life". This offers legal support to an act which has been accepted by the medical profession and by society at large in other countries for several years. It is known that in countries that adopted nonresuscitation protocols, there were no significant changes in the indications for CPR; the real improvement was in terms of communication between the medical team and the family.

Another situation that frequently leads to mistakes is interpreting the value attributed by several religions to the preservation of life as an indication, in the case of terminally ill patients, to use all the resources available, always. A text by Pope Pio XII, addressed to health professionals, states that "if the family perceives the attempt of reanimation as too heavy a burden, it is licit that they insist that the physician interrupt these attempts, and it is licit for the physician to obey."
Conclusion

In this study, the discrepancy between CPR practice and records is unjustifiable. This conduct, which is the routine in many Brazilian hospitals, results from the fear of legal consequences associated with a medical conduct that benefits the patient, and therefore is ethically justifiable. Providing information, especially to young physicians, about the medical and legal aspects of CPR is, therefore, relevant and urgent. The Bioethics Committee at the Children's Institute has been working on these issues in daily practice, with clear results.

Finally, it is worth emphasizing once again that the decision of not resuscitating a terminally ill patient should result from a discussion among the multi-professional team that assists the patient, the family, and the patient, if s/he is able to give an opinion; if necessary, such a discussion should count on the support of the institution's ethics or bioethics committee. It is necessary to keep in mind that CPR is not always advantageous for children. The discrepancy we found is a mere symptom that reflects the reluctance in taking responsibility for a justifiable medical action that imposes no loss for patient or relatives.

Acknowledgments

We thank the members of the Children's Institute Bioethics Committee for the invaluable support in accomplishing this work.

References