Original Article

When to Let Go: Physician Ethical Dilemmas in CPR Initiation During In-Hospital Arrests

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Abstract

Objective: To examine physicians' attitudes on initiating and terminating cardiopulmonary resuscitation (CPR) in terminally ill patients and to explore how these attitudes vary by demographic and professional characteristics.

Methods: This cross-sectional study included 129 medical specialists from 14 departments of the University Hospital Centre Osijek, Croatia (2021). Data were collected using a 31-item questionnaire covering demographics, professional experience, attitudes toward CPR, knowledge of survival outcomes, and responses to six clinical scenarios.

Results: More than half of respondents (55.1% and 69.8%, respectively) supported withholding or early termination of CPR in patients with incurable illness, primarily citing false hope, prolonged suffering, and resource overuse. Despite these views, over half indicated they would initiate CPR in all six hypothetical scenarios, including patients with advanced malignancy and multiple comorbidities. ICU admission following successful CPR was favoured by 52% of respondents, even in terminal cases, although knowledge of outcomes and resources was limited: only 45% correctly identified survival rates after in-hospital cardiac arrest, and fewer than 40% knew ICU bed capacity. Surgeons were less likely than non-surgeons to regard CPR in terminal patients as futile ($P<0.05$).

Conclusion: Our findings indicate that structured ethics education and clear institutional guidelines are essential to improve decision-making in end-of-life care in Croatia.

Keywords: cardiopulmonary resuscitation; terminally ill; attitude of health personnel; clinical decision-making; ethics, medical; Croatia

1 Introduction

In-hospital cardiopulmonary resuscitation (CPR) is a widely used intervention in emergency care, though its application in patients with advanced or incurable illness raises ethical and medical

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concerns. While intended to preserve life, such interventions may instead extend suffering, deplete hospital resources, and delay access to appropriate palliative care. The concept of dysthanasia, the prolongation of dying through invasive treatment, illustrates the dilemma (1).

Resuscitation teams are increasingly confronted with situations in which CPR is initiated despite minimal likelihood of survival or the preservation of meaningful quality of life. According to the European Resuscitation Council, survival following in-hospital cardiac arrest ranges from 15–34% at 30 days or hospital discharge. In countries where withdrawal of life-sustaining treatment (WLST) is routinely practiced, over 90% of survivors achieve good neurological outcomes, with most able to return to work. In contrast, in regions where WLST is not implemented, poor neurological outcomes are more frequent, with up to 50% of survivors severely disabled and approximately one-third remaining in a persistent vegetative state (2).

In Croatia, legal frameworks such as the Protection of Patients' Rights Act and the Code of Ethics of the Croatian Medical Chamber emphasize patient autonomy and the right to a dignified death, discouraging the creation of false hope in patients or families (3,4). Nevertheless, limited palliative care capacity often results in terminally ill patients being admitted to acute hospital wards, where resuscitation may be attempted. Resuscitation decisions are frequently made under pressure at the bedside, shaped by professional culture, legal uncertainty, and family expectations rather than structured policies (5).

The aim of this study was to examine physicians' attitudes on the initiation and termination of CPR in terminally ill patients at the University Hospital Centre Osijek. Specifically, we sought to explore non-intensivist physicians' attitudes toward CPR in patients with advanced, incurable disease as well as to identify perceived reasons for initiating CPR despite medical futility. Also, we wanted to assess attitudes on ICU admission following successful CPR in terminal patients and analyze whether these attitudes differ according to non-intensivist physicians' demographic and professional characteristics.

2 Methods

This cross-sectional study was conducted in 2021, at the University Hospital Centre Osijek, Croatia. Eligible participants were medical specialists from 14 organizational units, representing a range of surgical and non-surgical disciplines. Participation was voluntary and anonymous.

Data were collected using a structured questionnaire developed specifically for this study. It contained 31 items across four domains: demographics and professional experience (age, sex, specialty, years in practice, CPR training, number of resuscitations and team activations in the past year, prior lawsuits, and estimated futile CPR attempts); attitudes toward CPR (agreement with statements on initiation, withholding, and termination, reasons for initiating in terminally ill patients, and legal or ethical concerns, rated on a five-point Likert scale or as yes/no answers); knowledge (factual questions on ICU bed capacity, survival after in-hospital cardiac arrest, and the concept of dysthanasia); and hypothetical clinical scenarios (involving elderly patients with comorbidities, patients with metastatic cancer, and children with or without severe illness, for

which respondents indicated whether they would initiate CPR).

Categorical variables were summarized as frequencies and percentages. Group differences were analyzed using the χ^2 test. Numerical variables were tested for normality with the Shapiro–Wilk test and presented as medians with interquartile ranges (IQR). Between-group comparisons of numerical variables were performed using the Mann–Whitney U test or Kruskal–Wallis test, as appropriate. All P-values were two-tailed, with statistical significance set at α=0.05. Analyses were conducted using MedCalc Statistical Software, version 20.008 (MedCalc Software Ltd, Ostend, Belgium).

3 Results

A total of 129 physicians participated in the study. Participants demographic and professional characteristics can be found in Table 1. Of note, 55% were male, 80.6% identified as Catholic, and 46% were surgeons.

Majority of participants haven't perceived any CPR attempt in the past year as futile, median 0 (IQR 0-2). Female physicians and those in surgical specialties reported significantly fewer futile CPRs (Mann–Whitney U test, P=0.03 and P=0.04, respectively). Overall, respondents estimated that only 20–30% of resuscitation attempts were medically futile.

When asked about end-of-life scenarios, 69.8% of physicians supported early termination of CPR in patients with terminal, incurable illness, and 55.1% supported withholding CPR entirely. More than half (53.5%) indicated they would initiate CPR after a suicide attempt.

Respondents generally agreed that successful resuscitation of terminally ill patients: creates false hope for patients and families (median=4, IQR 3–4), prolongs suffering (median=4, IQR 3–5), depletes hospital resources (median=4, IQR 3–5). Surgeons were less likely to agree with these statements (Mann-Whitney U test, P=0.01), while physicians with prior legal disputes were more likely to agree (Mann-Whitney U test, P=0.02). Those without resuscitation experience in the previous year were more likely to disagree that resuscitation drains resources (Kruskal-Wallis test, P=0.01).

Only 45% of participants correctly identified survival rates after in-hospital cardiac arrest, and 37.2% knew the correct number of ICU beds in their hospital. Female physicians showed better factual knowledge than males (χ^2 test, P=0.006). Understanding of the concept of dysthanasia was higher among non-surgeons (χ^2 test, P<0.001).

When presented with six hypothetical clinical scenarios, more than half of the physicians indicated they would initiate resuscitation in every case, even when the patient had advanced malignancy or severe comorbidities (Table 4). For example, 55.0% would resuscitate an 85-year-old woman with severe comorbidities, and 51.2% would resuscitate a 40-year-old man with metastatic lung cancer. Nearly all respondents would initiate CPR in younger patients without comorbidities.

Table 1. Participant demographics and professional experience

Variable	Category	Number (%)
Age	28–39 years	39 (30.2)
	40–49 years	40 (31.0)
	50 and more years	50 (38.8)
Sex	Male	71 (55)
	Female	68 (45)
Religion	Catholic	104 (80.6)
	Other	25 (19.4)
Years of experience	Up to 4 years	26 (20.2)
	5–9 years	22 (17.1)
	10–14 years	22 (17.1)
	15–24 years	29 (22.5)
	≥25 years	30 (23.3)
Most recent CPR training	≤10 years ago	45 (54.2)
	>10 years ago	38 (45.8)
CPR attempts in the last year	0	46 (35.7)
	1–3	35 (27.1)
	4–9	15 (11.6)
	10 and more	33 (25.6)

Table 2. Attitudes toward CPR termination and withholding by religious affiliation

Statement	Catholics Median (IQR)	Other Median (IQR)	H-L diff.	95% CI	p*
I support terminating resuscitation after 20 minutes if spontaneous circulation cannot be established with the use of advanced life support measures.	4 (3–4)	4 (3.8–5)	1	0–1	0.01
I support terminating resuscitation before 20 minutes have passed, if data are obtained that the patient is suffering from a serious, incurable illness.	4 (3–5)	5 (4–5)	1	0–1	0.008
I support not initiating resuscitation if it is known that the person is suffering from a serious, incurable illness.	4 (2–5)	5 (3–5)	1	0–1	0.01
Religious reasons would prompt me to begin resuscitation despite the fact that the person is suffering from a serious, incurable illness.	3 (1–4)	1 (1–2)	–1	–2–0	<0.001

*Mann–Whitney U test; H-L diff. = Hodges–Lehmann difference

Table 3. Attitudes toward CPR withholding vs. withdrawal by specialty

Statement	Surgeons Median (IQR)	Other Median (IQR)	H-L diff.	95% CI	p*
I support not initiating resuscitation if it is known that the person is suffering from a serious, incurable illness.	3 (2–4.8)	4 (3–5)	1	0–1	0.007
I believe that it is more ethically acceptable to completely withhold resuscitation than to stop resuscitation that has already started.	2 (1–3)	3 (3–4)	1	0–1	0.002

*Mann–Whitney U test; H-L diff. = Hodges–Lehmann difference

Table 4. Agreement with resuscitation initiation in hypothetical clinical scenarios

Clinical Scenario	Yes, n (%)	No, n (%)
85-year-old woman with multiple comorbidities	71 (55.0)	58 (45.0)
85-year-old woman, previously healthy with well-controlled diabetes mellitus	126 (97.7)	3 (2.3)
40-year-old man with metastatic small-cell lung cancer	66 (51.2)	63 (48.8)
40-year-old man, previously healthy	128 (99.2)	1 (0.8)
7-year-old child with a glial brain tumor	103 (79.8)	26 (20.2)
7-year-old child, previously healthy, after craniocerebral injury	128 (99.2)	1 (0.8)

4 Discussion

The European Resuscitation Council (ERC) guidelines recommend that resuscitation decisions for at-risk patients should be discussed in advance, documented, and made collaboratively (6). In our study, however, only a minority of physicians reported that CPR decisions were made collaboratively in advance. A qualitative study by Imhof et al. showed that in Switzerland, true consensus was difficult to achieve (hierarchy, reluctance to involve patients) and that nurses were frequently excluded from decision-making (7). Non-consensual, individual decisions were often challenged later in the course of the treatment, associated with conflict, non-compliance, and significant distress among team members. On the other hand, consensual decisions were more often followed through, underscoring the benefits of a collaborative approach. Nevertheless, despite these challenges, 86% of patients in Switzerland who die a non sudden death have DNAR in place. This contrasts with Croatian practice, where documented DNAR orders are almost nonexistent (8). These findings suggest that despite clear guideline recommendations, achieving shared CPR decisions remains a major challenge across Europe, leaving physicians to make difficult decisions at the bedside.

Respondents in our study reported that 20–30% of in-hospital CPR attempts were medically futile. Although physicians recognized that such CPR may prolong suffering, create false hope,

and consume limited hospital resources, these views did not consistently translate into practice. More than half of participants still chose to initiate CPR across all hypothetical clinical scenarios, even in cases of advanced malignancy or multiple comorbidities. Willmot et al. investigated the causes for providing futile treatments among US physicians and found a range of interrelated factors: physician attitudes (focus on cure, discomfort with death, fear of legal risk, poor communication), patient/family influences (treatment demands, prognostic uncertainty, unclear wishes), and hospital systems (specialization, readily available interventions, organizational barriers to palliation). The main drivers were family requests and physicians' curative orientation (9). In our study, most frequently cited reasons for initiating CPR in terminal patients were younger patient age, fear of legal consequences, lack of ethics education, and inadequate access to ethics or legal consultation. Family expectations played a secondary role, but the family presence during CPR was believed to prolong futile resuscitation.

Interestingly, surgeons were less likely than non-surgeons to view CPR in terminal patients as futile, possibly reflecting differences in patient populations or professional culture, with surgery often framed as an interventionist specialty. Nevertheless, physicians from non-surgical departments reported greater involvement in CPR efforts. Greater resuscitation experience appeared to increase awareness of the negative consequences of futile CPR. Notably, most respondents (74%) had participated in fewer than 10 resuscitations annually, consistent with data from the United States (10). Religious affiliation also shaped attitudes, with Catholic physicians less supportive of withholding or terminating CPR, which may appear inconsistent with traditional Catholic teaching that does not advocate dysthanasia (11). However, religion was not significantly associated with CPR choices in hypothetical cases, indicating that professional and situational factors may outweigh personal beliefs in practice.

Knowledge of survival outcomes after in-hospital cardiac arrest was limited, with fewer than half of physicians identifying the correct rates. Similarly, awareness of ICU bed capacity was low. Comparable findings have been reported internationally: physicians in Cleveland were shown to overestimate CPR survival by up to 300%, and more than 60% of Detroit physicians provided inaccurate estimates of survival outcomes (1). These knowledge gaps may foster unrealistic expectations about the effectiveness and feasibility of resuscitation, thereby reinforcing the tendency to initiate CPR, as well as pressuring for admitting resuscitated terminally ill patients to intensive care. Together, these factors contribute to a culture of dysthanasia, where resuscitation is initiated despite minimal likelihood of benefit (1).

Another issue was ethical uncertainty: more than one-third of respondents viewed withdrawal of CPR once begun as more troubling than withholding it in the first place. Younger physicians were less likely to find stopping CPR harder, possibly due to less clinical experience and a tendency to initiate more futile interventions early in their careers. Data from Europe and USA stated that it is personally more difficult for physicians to subsequently discontinue the aforementioned treatments than to completely withhold them, even though from an ethical standpoint, there is no difference between withdrawing and withholding life sustaining treatment (12,13).

5 Conclusion

Physicians in our study often recognized the futility of CPR in terminally ill patients but still proceeded with resuscitation in many cases. This discrepancy between ethical awareness and clinical practice is well recognized in the literature, and appears to stem from legal uncertainty, limited training, and insufficient ethics support. Introducing legal frameworks and aligning Croatian law to regulate and normalize the limitation of life-sustaining therapies is essential to reduce uncertainty for physicians and ensure consistent, ethically grounded end-of-life care. In parallel, hospitals should develop clear institutional protocols, expand ethics education, and provide accessible consultation services to support decision-making in acute situations. The inconsistency between physicians' ethical awareness and clinical choices highlights an urgent need for clearer institutional policies and structured education. Hospitals should also establish accessible ethics consultation services to support physicians faced with complex CPR decisions. Without such measures, physicians may continue to initiate futile resuscitation, driven more by external pressures than by patient-centered judgment.

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Ethics Statement

Written informed consent was obtained from all participants prior to inclusion in the study. The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Faculty of Medicine Osijek (Date 14 of April 2021).

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Conflict of Interest

The authors declare that they have no conflicts of interest.

Author Contributions

Ivana Harsanji Drenjancevic conceived research goals and aims. Davor Klepo and Tamara Janosevic collected and analyzed the data and wrote the original manuscript. Ivana Harsanji Drenjancevic and Vjeran Leventic reviewed and edited the manuscript. All authors read and approved the final manuscript.

Data Availability

All data is available upon request to the corresponding author.

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