How Misconceptions Among Elderly Patients Regarding Survival Outcomes of Inpatient Cardiopulmonary Resuscitation Affect Do-Not-Resuscitate Orders

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Context: On hospital admission, many elderly patients make the decision to enact a do-not-resuscitate (DNR) order. However, few studies have evaluated the beliefs of elderly patients regarding the likelihood of surviving cardiopulmonary resuscitation (CPR) if it should become necessary during their hospitalization.

Objectives: To quantify elderly patients’ beliefs about their chances of survival to discharge following CPR; to ascertain the sources of information that may lead to these beliefs; and to determine how these beliefs affect decisions regarding DNR orders.

Methods: An oral standardized survey was administered to 100 patients aged 70 years or older. Patients were randomly selected from the emergency department, internal medicine clinic, and general medical wards at one urban medical center.

Results: Most respondents (81%) believed that their chance of surviving inpatient CPR and leaving the hospital was 50% or better, and 23% of those respondents believed that their chance was 90% or better. Forty-four percent of patients reported having a standing DNR order. Most patients reported obtaining healthcare information from television, physicians, or both.

Conclusion: Elderly patients often hold erroneous beliefs regarding the outcomes of inpatient CPR. A significant number of our participants had standing DNR orders despite demonstrating extremely optimistic beliefs about CPR. Educating patients and their families about these poor outcomes would allow them to make more informed decisions regarding end-of-life issues.

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It is speculated that the success rate for cardiopulmonary resuscitation (CPR) has been steadily declining since it was introduced nearly 40 years ago. Initially designed for limited clinical situations, this procedure is now used on many individuals who would have been considered inappropriate candidates in the past.1 Elderly patients may fall into this category. The US Patient Self-Determination Act,2 followed by aggressive public campaigns during the past few decades, has expanded the role of CPR so that it is now considered the current standard of care. Thus, many patients are subjected to medically futile procedures that offer little, if any, acceptable survival benefits. The introduction of the do-not-resuscitate (DNR) order has allowed patients the opportunity to weigh personal beliefs against the perceived risks and benefits of CPR.

The observation that age is not a clinical predictor of mortality in CPR is being challenged by the current literature.3 Survival-to-discharge rates vary among these studies; however, they rarely exceed 10% of the patients leaving the hospital alive. Outcomes predominately reveal that a mere 3% to 5% of patients are surviving CPR to discharge, and a survival rate of 0% has been reported.3–6 The emerging consensus is that CPR may not only be inappropriate therapy for some patients, it may constitute medical futility in many cases.

Elderly patients are routinely asked about their wishes regarding DNR status when they are admitted to the hospital. Often, it is the first time they have considered such issues. Decisions about DNR status are often made in haste, under stressful circumstances, and by ill and fearful patients as they face hospital admission. Some patients do not have the assistance or counsel of a friend or family member when asked to make a decision regarding this topic.

Most physicians would likely agree that the poor survival rate of elderly patients after inpatient CPR correlates well with most physicians’ daily observations of this group. The attitudes and beliefs of elderly patients are not as evident. One might suppose that belonging in a peer group that is frequently hospitalized should offer some degree of insight into CPR and end-of-life issues. This study was conducted to assess the beliefs of elderly patients about their perceived chances of surviving an inpatient resuscitation to discharge, the origin of these beliefs, and how they affect the decision to implement a DNR order. The results could aid physicians attempting to educate patients and their families about DNR orders.

Methods

Patients

Patients aged 70 years and older were chosen randomly at the Wilford Hall Medical Center (San Antonio, Tex) emer-
gergency department, internal medicine clinic, and general medical wards. Patients were asked to describe their understanding of the issues. Patients had to demonstrate a clear understanding of the issues to be included. We excluded a handful of patients who did not seem to fully grasp the concepts or were confused by certain aspects of the issues.

**Data Collection**
All patients agreed to answer a standardized three-question survey. Interviews were conducted one on one, and medical jargon or ambiguous terms were avoided to help ensure patient understanding. The questions posed to patients were as follows:
1. If you were hospitalized and CPR had to be performed in order to save your life, what percent chance would you have at leaving the hospital alive?
2. Where do you get most of your healthcare information?
3. Do you have a do-not-resuscitate order or a living will?

**Results**
We studied responses from 100 patients, including 44 from the emergency department, 35 from the internal medicine clinic, and 21 from the general medical wards.

The responses to question 1 are shown in Figure 1. Most respondents (81%) believed that their chance of surviving inpatient CPR and leaving the hospital was 50% or better, and 23% of those respondents believed that their chance was 90% or better. Nine percent reported their chance to be 10% or less.

Respondents reported that their primary sources of healthcare information were their television, physicians, or both. A small percentage of patients reported print media as their primary source (Figure 2).

In answer to question 3, 44% of patients reported having a DNR order on file either at their residence or with their physician.

**Comment**
When patients are asked to make a decision regarding DNR status, most seem to be basing their decisions on erroneous beliefs about the likelihood of survival.

We examined the survival rates of elderly patients as reported in a number of studies. Taffet et al. provided categorical data from eight trials in which patients aged 70 years or older were followed up after inpatient CPR. The authors concluded that increasing age is correlated with failure to live to discharge. Other studies with similar populations have determined the rate to be between 3.8% and 17.1%. It has also been demonstrated that elderly patients overestimate the probability of survival to discharge by at least 200%.

**Figure 1.** Perceived chances of surviving cardiopulmonary resuscitation to discharge.

**Figure 2.** Sources of health information as reported by elderly patients.
The expectations of elderly patients and actual rates of survival do not correlate well. One explanation for this discrepancy could possibly be misrepresentation in the media. Medical television dramas set during the “prime time” television viewing hours showcase survival rates as high as 75%.\textsuperscript{11} Overall, characters in television dramas survive CPR attempts 67% of the time.\textsuperscript{11} It is interesting to note that these statistics correlate well with the attitudes of the study population. Because a large percentage of respondents reported television as their primary source of healthcare information, it is difficult not to speculate on the role medical dramas may play in spreading misinformation.

Although national statistics regarding DNR rates are scarce, Wenger and colleagues\textsuperscript{12} found that 11.6% of 14,008 Medicare patients had a DNR order. In our study population, 44% reported having a DNR order. Our participants’ views about CPR were largely favorable; however, their actions did not correlate well with their optimism. It is possible that patients are confused about what resuscitation means and what DNR orders entail. It has been our experience that patients mistake chest compressions, intubations, and cardioversion as benign interventions and often do not know what constitutes CPR. Further assessing patient understanding in this area would be of benefit to healthcare providers.

Conclusion
The evidence we present supports the conclusion that elderly patients hold erroneous beliefs regarding CPR and its efficacy in their demographic group. Furthermore, our findings demonstrate the need for improved communication between physicians and their elderly patients about end-of-life issues. Ideally, such discussion should occur when the patient is in relatively good health and should be approached by the physician in a nonthreatening manner (ie, free from the personal biases of the physician).

As for other medical procedures, patients have the right to know the risks and benefits of CPR. Physicians can assist their elderly patients in making more informed choices by defining CPR, communicating the poor survival rates of elderly patients after inpatient CPR, and addressing the inaccuracies depicted on television medical dramas.

References
2. Patient Self-Determination Act 42 USC §1395cc(a)(1)(O), §1395mm(c)(8), §1396a(a)(57), §1396a(a)(58), §1396a (w) (1990).