ORIGINAL RESEARCH

If Asked, Hospitalized Patients Will Choose Whether to Receive Life-Sustaining Therapies

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BACKGROUND: No national policy requires health care providers to discuss with hospitalized patients whether the latter would want cardiopulmonary resuscitation (CPR) or mechanical ventilation (MV) in the event of cardiopulmonary failure.
OBJECTIVE: To determine whether hospitalized patients are willing to discuss end-of-life issues and choose whether to receive CPR and MV.
DESIGN: Prospective randomized trial.
PARTICIPANTS: 297 patients admitted to the medicine service of a 350-bed community teaching hospital.
INTERVENTION: Patients were randomized to receive routine care or a scripted intervention, delivered by research physicians, that included detailed information about CPR, MV, and advance directives.
MEASUREMENTS: Number of patients who welcomed the scripted intervention, number who chose to receive or reject CPR/MV, and number of advance directives created during hospitalization.
RESULTS: Of the 297 patients studied, 136 were in the intervention group and 161 were in the control group. Baseline characteristics and severity of illness were similar in the 2 groups. Of the 136 patients in the intervention group, 133 (98%) willingly discussed CPR and mechanical ventilation, and 112 (82%) found the information useful. One hundred and twenty-five (92%) clarified their preferences regarding CPR and MV after receiving the intervention; of the 48 patients who were initially documented as wanting CPR/MV, 3 requested no CPR/MV after the intervention. Of the 87 patients in the intervention group who had no documentation of code status on admission, 5 asked for no CPR/MV. Of the 161 patients in the control group, 55 had documentation of their code status on admission. Of the 106 patients without documentation, 6 were later documented to receive no CPR/MV. Thirteen of the 102 patients who had no advance directive on admission created one after the intervention, whereas only 1 of the 128 patients in the control group did so ($P < .001$).
CONCLUSIONS: Patients are willing to discuss and give informed consent for CPR and mechanical ventilation early in hospitalization. Only a minority drafted advance directives during hospitalization. Larger studies that include patients at other centers are required to determine whether these findings are reproducible and whether this approach is clinically feasible. ***Journal of Hospital Medicine* 2006;1:161–167.**

KEYWORDS: cardiopulmonary resuscitation (CPR), mechanical ventilation, end of life, patient self-determination, autonomy, advance directive, living will, code status.

Respect for patient autonomy is a primary ethical principle guiding the practice of medicine in the United States.[1]. The Patient Self-Determination Act (PSDA), enacted to enhance autonomy at the end of life, has not fulfilled its promise for a number

DOI 10.1002/jhm.78
Published online in Wiley InterScience (www.interscience.wiley.com).

of reasons.[2–4] No state mandates that on admission, hospitalized patients be asked to provide informed consent for end-of-life procedures. Despite informed consent being a requirement for all other invasive procedures when there is sufficient opportunity to obtain it (eg, in nonemergent situations with a capable patient),[5] cardiopulmonary resuscitation (CPR) and mechanical ventilation are assumed, until otherwise stipulated, to be procedures that all patients want. It also has been assumed that patients would believe that a request for informed consent for such procedures on hospital admission implied they had significant risk of cardiopulmonary failure and that this would discourage or disturb acutely ill patients.[6] Another impediment to obtaining informed consent is that many physicians may not have sufficient time or level of comfort to be able to routinely approach end-of-life discussions. In this prospective study, we hypothesized that acutely ill medical patients would be willing to provide informed consent for CPR and mechanical ventilation and to create written advance directives.

METHODS

This study was approved by the hospital's institutional review board. Patients admitted to the Department of Medicine from December 2003 through February 2004 were candidates for this study. Patients admitted for cardiac catheterization (and similar same-day medical procedures) or critical illness (admitted to intensive care units) were excluded from the study. In our hospital, all patients are asked by admitting personnel (clerk and nurse) whether they already have advance directives. Some patients are also queried by their physicians about whether they wish to have CPR in the event of cardiopulmonary arrest during hospitalization. Patients who are not asked are assumed to be "full codes," that is, they are to receive CPR and mechanical ventilation in the event of cardiac and respiratory failure. For those who are asked, there are generally 3 possible outcomes: (1) the patient chooses to accept CPR and mechanical ventilation, and nothing further is documented; (2) the patient chooses a code status, and it is documented in the admission orders and/or a formal code designation form with a progress note describing the discussion; or (3) the patient defers the decision.

Our data processing department generated a daily list of the patients admitted to the hospital on the previous day. Patients satisfying inclusion criteria were randomized (by a random number generator) to the intervention or the control group. Medical records of all patients were examined to ascertain demographic information, admission Acute Physiology and Chronic Health Evaluation (APACHE) II score, primary diagnosis, number of comorbid illnesses, and documentation of whether the patient had a preexisting advance directive or wishes regarding CPR and mechanical ventilation for that admission.

Patients in the control group were *not* approached by study personnel, but medical records were surveyed for their in-hospital outcomes and changes in code or advance directive status. Patients randomized to the intervention arm were approached by 1 of 4 study physicians, who read from a script detailed information about life-sustaining therapies and advance directives (see Appendix). This script was developed with hospital clinician-experts and approved by members of the Department of Medicine.

Patients whose primary language was not English were interviewed through in-house or 3-way telephone (remote) translators. All patients in the treatment group were assessed during the scripted intervention to ascertain whether they had the capacity to make informed decisions, which was determined based on their ability: (a) to understand the information presented, (b) to consider the information in relation to their personal values, and (c) to communicate their wishes. If personnel doubted an individual's capacity in any of these 3 areas, then he or she was not included in the study (ie, excluded after randomization). In the control group, patients with documented dementia or delirium were also excluded.

As specified in the script, patients in the intervention group were asked at the end of the interview whether they wished to choose their in-hospital CPR status for that admission. If a patient definitely wanted to change the status indicated in the hospital record, study personnel would communicate the patient's wishes to the admitting physician. Attending physicians were given the opportunity to speak with their patients before changing a code status, but if the physicians agreed with the change, study personnel would document it in the formal orders. Patients were also asked whether they wished to create advance directives; if so, staff from the hospital's patient relations department would meet with them to draft the documents.

The following outcomes were measured: 1) will-

ingness of patients assigned to the intervention group to listen to the script about end-of-life/life-sustaining therapies; 2) opinions of patients about whether the information in the intervention was "useful" versus whether it was "disturbing"; 3) the frequency with which patients who had proactively received the information chose or changed their code status; and 4) the frequency with which patients without a preexisting advance directive created one while hospitalized. Simple proportions of each of these variables (ie, observed number divided by total number) in the intervention and control groups were compared using software that calculates the significance of the difference between two percentages (Statistica™). The demographics of the patients were compared using the unpaired Student's t test. A P value of $< .05$ was considered statistically significant.

RESULTS

A total of 585 patients admitted to the Department of Medicine between December 2003 and February 2004 were randomized for the study. Patients were excluded if they had insufficient capacity (133) or if they were rapidly discharged from the hospital (155). Patients who were excluded tended to be more ill (APACHE 8.1 vs. 7.3, $P = .06$) and were more likely to die while hospitalized (8% vs. 4%, $P = .04$). A total of 297 patients were included in the study, 136 in the intervention group and 161 in the control group. Baseline characteristics were similar between the 2 groups (see Table 1).

Did Patients Find Information About End-of-Life Issues Useful?

Of the 136 patients in the intervention group, 133 (98%) willingly discussed CPR and mechanical ventilation, and 112 (82%) found the information useful. Only 6 patients stated that they were disturbed by the information, 3 of whom refused to discuss CPR and mechanical ventilation. Twelve patients offered no opinion (positive or negative) about the information.

Did Patients Who Received the Intervention Clarify Their CPR Preference?

Of the 136 patients in the intervention arm, 49 (36%) had explicit documentation of their code status on admission, compared to 55 of the 161 patients in the control group (34%; $P = .7$). Documentation included listing the CPR status in the admission orders or in a completed code designation form. After receiving the intervention, 125 of the 136 patients in the intervention arm (92%) clarified their preferences about CPR and mechanical ventilation.

Of the 49 patients in the intervention group who had documented CPR status on admission, 48 were listed as full code (both CPR and mechanical ventilation), and 1 was documented as refusing both CPR and mechanical ventilation. Of the 48 patients who were full codes, 3 stated they did not want CPR and mechanical ventilation under any circumstances after the intervention. Their preferences were subsequently documented as formal orders. The remaining 45 (94%) stayed full codes (see Figure 1).

Of the 87 patients in the intervention group who had no explicit documentation of CPR status on hospital admission, 76 clarified their preference and 11 did not. Of the 76 patients, 71 wished to receive both CPR and mechanical ventilation, and 5 wanted neither. The status of the latter as "no code, no ventilator" was subsequently documented in the medical record with the consent of their attending physicians. One of these 5 patients became increasingly ill during hospitalization, with reduced capacity, and family members later asked that he receive only comfort care.

Of the 161 patients in the control group, 55 (34%) had documentation of their code status (ie, to receive CPR if needed) in the admission hospital record. By the end of hospitalization, 1 patient requested no CPR and no mechanical ventilation, and 2 received comfort care with cessation of other active life-prolonging interventions. Of the 106 without initial code documentation, 4 were later documented as being "no code, no ventilator" and 2 as being comfort care (see Figure 1).

Did Patients Create Advance Directives?

Thirty-four of the 136 patients in the intervention group, and 33 of the 161 patients in the control group had advance directives prior to hospital admission. As a result of the intervention, 13 of the 102 patients without previous advance directives created them, compared with 1 of the 128 patients in the control group ($P < .001$).

DISCUSSION

This study demonstrates that most (95%) hospitalized medical patients welcomed the opportunity to provide prospective informed consent for CPR and mechanical ventilation. Although only a small mi-

TABLE 1
Characteristics of Patients

Characteristic	Intervention (n = 136)	Control (n = 161)	*P* value
Age (median)	65	69	0.2
<65 years old	67 (49%)	67 (42%)	0.2
Sex			
Female	63 (46%)	87 (54%)	0.2
Ethnicity/Race			
White, non-Hispanic	104 (77%)	113 (70%)	0.2
Black, non-Hispanic	21 (15%)	24 (15%)	1.0
Hispanic	10 (7%)	20 (12%)	0.2
Asian and other	1 (1%)	4 (2%)	0.5
Religion			
Catholic	81 (60%)	97 (60%)	1.0
Protestant	42 (31%)	43 (27%)	0.5
Jewish	7 (5%)	7 (4%)	0.7
Buddhist/other	0	2 (1%)	0.2
Unknown/refused	6 (4%)	12 (7%)	0.3
Education			
Postgrad	7 (5%)	4 (3%)	0.2
College	39 (29%)	44 (27%)	0.7
High school	61 (45%)	77 (48%)	0.6
Elementary	15 (11%)	20 (12%)	0.8
Not known	14 (10%)	16 (10%)	1.0
Admitting Diagnosis			
MI/CAD/ACS	23 (17%)	34 (25%)	0.09
Pneumonia	16 (12%)	25 (16%)	0.3
CHF	12 (9%)	6 (4%)	0.08
Afib/aflutter	5 (4%)	15 (9%)	0.09
GI bleeding	8 (6%)	13 (8%)	0.5
CVA/CVD	7 (5%)	12 (7%)	0.5
Cancer	7 (5%)	10 (6%)	0.7
COPD	6 (4%)	10 (6%)	0.4
Dehydration	5 (4%)	8 (5%)	0.7
DVT	3 (2%)	7 (4%)	0.3
APACHE II score (median)	6	7	0.4
Number of comorbidities (median)	1	1	0.9
In-hospital mortality (rate)	0.05	0.08	0.3

MI—myocardial infarction; CAD—coronary artery disease; ACS—acute coronary syndrome; CHF—congestive heart failure; afib—atrial fibrillation; aflutter—atrial flutter; CVA/CVD—cerebrovascular accident/cerebrovascular disease; COPD—chronic obstructive pulmonary disease; DVT—deep venous thrombosis; APACHE—Acute Physiologic and Chronic Health Evaluation.

nority (4%) opted out of CPR/mechanical ventilation, a majority (92%) of those who received the educational intervention chose to accept those therapies if required. This study also demonstrates that hospitalization can be one point-of-care where patients can consider and create advance directives. The results of this study are consistent with those of the SUPPORT group[4] and other[7] studies about patient interest in making choices on CPR. Our study suggests that physicians can elicit patients' wishes about and record formal orders on CPR around the time of hospital admission.

The default action has been to administer CPR and mechanical ventilation after cardiopulmonary failure or arrest, that is, patients receive these procedures unless they state explicitly that they do not want them. Unlike with all other invasive procedures, no national regulation mandates obtaining informed consent prospectively, when possible, for these treatments, because it is assumed that patients would want these therapies rather than the alternative (ie, death). Indeed, it is appropriate to perform lifesaving procedures in emergencies without consent if the patient lacks capacity and a surrogate decision maker cannot be contacted quickly. This clinical approach is consistent with medical

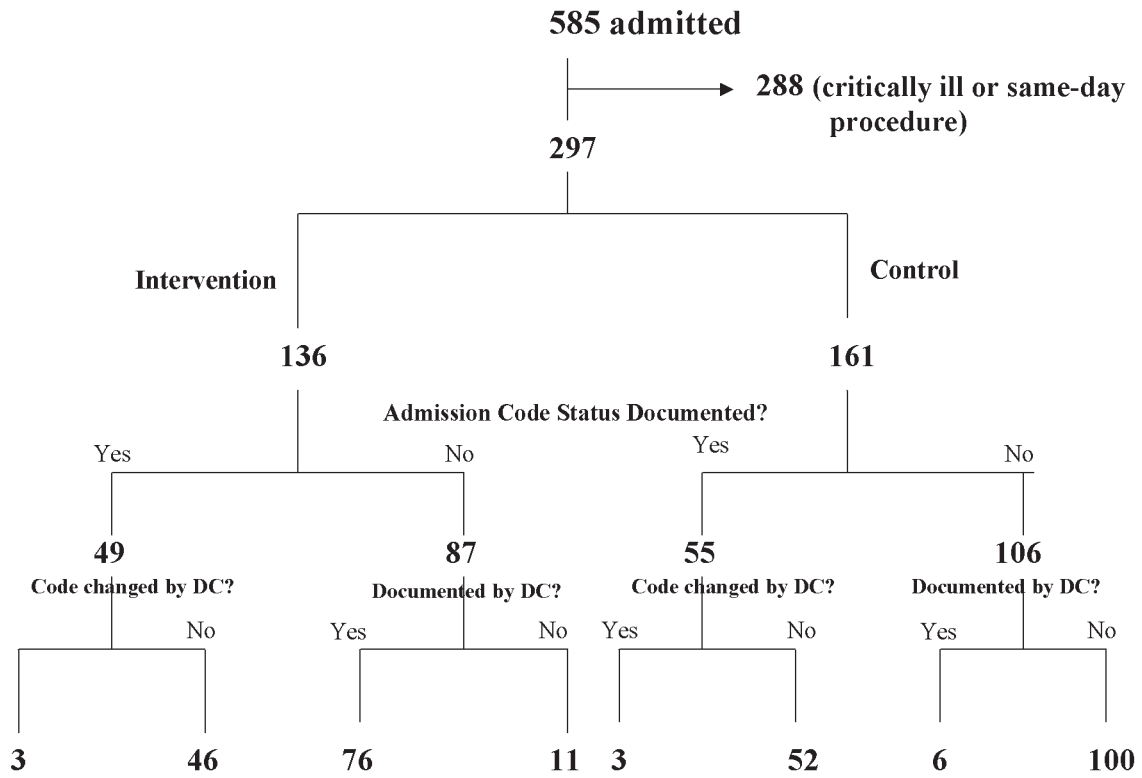

FIGURE 1. Documentation of preferences regarding life-sustaining therapies of patients in the intervention and control groups on admission and by hospital discharge (DC). Excluded patients include those incapable of making end-of-life decisions.

ethics: to err on the side of life when a patient's wishes are unknown or unclear. Nonetheless, having a full code as the default action denies patients the opportunity to provide informed consent for these highly invasive procedures because there often *is* ample opportunity to ask their permission. If patient self-determination is the categorical imperative of American medicine, then current practice violates that principle at the moment when it may be most important, that is, when a patient's decision about whether to risk life-sustaining therapies could promote survival or prolong dying. Our study demonstrates that a simple intervention—simply asking—promotes a decision and therefore patient autonomy in most cases.

When patients have opted for life-sustaining therapies that subsequently have been administered or when patients have received such therapies by default, physicians and patients can be left in 2 situations. In one outcome the patient retains capacity, and the dialogue about life-sustaining therapies can continue between patient and physician. In the second, frequent scenario, the patient is incapacitated. Until patient capacity can be restored, the physician must work with surrogate decision makers and preexisting advance directives to infer a patient's wishes about continuation of life-sustaining care. Our data demonstrate that hospital admission is one point-of-care at which patients can be offered and can complete, albeit in small numbers, advance directives.[8] Previous work with our patients demonstrated that many patients misunderstood advance directives and the degree of effort required to create them.[9] We reasoned that more patients might create advance directives if we offered the service for free during hospitalization. We were very surprised at how infrequently patients created advance directives in this study, although this finding is consistent with others in the published literature.[8] It is speculated that hospitalized patients may feel too ill to exert themselves and/or are not psychologically prepared to consider end-of-life directives (ie, "I came to the hospital to get better, not to consider what should be done when I'm terminal . . ."). Some patients may not trust physicians to use advance directives reliably.[4,10]

Our study had several important limitations. First, and most important, not all patients who were randomized were enrolled in the study. The most common reasons for exclusion were rapid discharge from the hospital and mental status change calling into question a patient's capacity to make end-of-life decisions. Nonetheless, it is only competent patients who can be engaged to decide these questions for themselves. Surrogates (ie, loved ones), guided by advance directives, are left to address resuscitation decisions for those lacking capacity. In addition, patients' predilections may change with time,[11] especially as death becomes more imminent. However, insofar as many patients have several hospital admissions as they approach the end of life and are more likely to possess capacity to consider CPR decisions during early admissions, their choices can be recorded repeatedly over time (with each admission or even as status changes during an admission) to inform decisions if they develop incapacity. Little more can be done to enhance autonomy regarding CPR beyond repeatedly educating and asking, as disease and specific illnesses progress. It can be argued that this intervention had little real overall effect—most patients who would have received CPR by default did in fact want it when informed and asked. This is an ethically problematic position for two reasons: it neglects the right of patients to decide for themselves, and it potentially subjects the small group of patients who would reject CPR if asked to an unwanted risky procedure (ie, one that may prolong dying). Another limitation of the present study is that patients were approached by doctors-in-training with whom they had had no prior therapeutic relationship. Although it would have been optimal for patients to be approached by their primary care physicians, this was not feasible. Even if we could have convinced all of our medical staff members to implement the intervention, it is unlikely that all would have adhered to a study "script," which is what enabled standardization of the information shared with patients. Some physicians may disagree with the script's content. But the goal of this study was not to determine if specific information would affect outcomes; rather, it was to determine if patients were receptive to discussing these issues and making proactive choices regarding life-sustaining therapies during hospitalization for acute illness. It is possible that using different scripts delivered by different personnel, ideally the patients' own doctors, might have elicited even greater rates of consent and proactive decision making. Finally, the degree to which these results can be generalized may vary based on the population sampled. White and well-educated patients are more likely to engage in end-of-life decision making than non-White and poorly educated patients.[9,12]

In conclusion, this study suggests that capable patients hospitalized for medical problems are willing to give informed consent for (or reject) CPR and mechanical ventilation in the event of cardiopulmonary failure. The approach of the study was very simple. It took roughly 5-10 minutes to inform patients and elicit their choices. Allowing patients to choose, rather than assuming that CPR is the choice of patients by default, strenuously honors patient autonomy. If these findings are replicated in larger cohorts and at different centers, there would be little justification for not informing patients about and asking them to choose their CPR preferences for each hospitalization. In the meantime, caregivers might consider the appropriateness of addressing these issues when they admit acutely ill patients to the hospital.

APPENDIX

The Scripted Intervention

Good morning. My name is _____, and I am a research doctor working with colleagues in the Department of Medicine. Doctors here are conducting this research project to increase your opportunities to make choices about what to do if you get very sick during hospitalization. We have no reason to think that this may happen to you, but my purpose is to discuss "what if." Do you wish to talk about this now?

If no then:

Should I return later to talk about this with you, or would you prefer not to talk about it at all during your stay with us.

If yes then:

Sometimes patients can become very sick very suddenly, and there isn't enough time to explain treatment options. Again, we have no reason to think that this may happen to you, but my purpose is to discuss "what if." There are 2 situations to consider: what to do if your heart stops and what to do if you have difficulty breathing and can't tell us what you want. CPR (or cardiopulmonary resuscitation) is the procedure performed when the heart stops. It involves repeatedly pressing and using

electrical shocks on the chest and giving medicines to try to restart the heart. A tube is also placed through the mouth or nose into the lungs so that a breathing machine can pump air into the lungs. CPR may be lifesaving. However, according to most published studies, CPR leads to successful discharge from the hospital for less than 20% of patients. Some patients who survive may have damage to vital organs as a result of the heart stopping. The alternative to receiving CPR is to be allowed to die without attempts at resuscitation. Do you understand what I've said? Should your heart stop during this hospitalization, would you like us to perform CPR on you? [*If patient indicates no CPR, the interviewer will repeat:* "Then you do not want CPR if your heart stops." *If patient indicates CPR, the interviewer will repeat:* "Then you want CPR if your heart stops."]

Breathing machines are used when patients cannot breathe by themselves. Use of these machines usually requires placing a tube through the mouth or nose into the lungs. Breathing machines are used to support patients while doctors try to repair the lungs. These machines are removed if or when patients can breathe on their own. If the condition that has caused your breathing to fail is not likely to improve with treatment, then it may be impossible to ever successfully remove your from the machine. Also, once you are on a breathing machine, you will be unable to speak, and it may be difficult to communicate your wishes. The alternative to going on the breathing machine if you have difficulty breathing is to provide you with oxygen and to use medicines to keep you comfortable. If you are unable to breathe under your own power, you cannot live very long, but our staff will do everything possible to maintain your comfort. Do you understand what I've said? Would you like us to place you on a breathing machine if you cannot breathe on your own and cannot tell us what to do during this hospitalization? [*If patient indicates no mechanical ventilation, the interviewer will repeat:* "Then you do not want to go on a breathing machine if your breathing fails even if it means you will die." *If patient indicates he/she wants mechanical ventilation, the interviewer will repeat:* "Then you want to go on a breathing machine if your breathing fails."]

I can also help you to create a living will, if you wish. Living wills are written documents that can help guide doctors on what to do if you become terminally ill (that is, if there is no chance of recovery). Living wills can also tell doctors whom you want to make decisions on your behalf if you become very sick and cannot speak for yourself. They can also be written to reflect your wishes if you become seriously ill with a nonterminal condition. Would you like me to help you create a living will for you?

Has your doctor had this discussion with you before? If so, when? Did this discussion disturb you? Did you find this information useful?

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Received 17 October 2005; revision received 19 January 2006; accepted 24 January 2006.

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