

Moving to High-Value Care: More Thoughtful Use of Cardiopulmonary Resuscitation

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Since Safar and colleagues first described mouth-to-mouth ventilation in 1958 (1) and Kouwenhoven and colleagues described closed-chest cardiac massage in 1960 (2), many changes in technique and protocol have improved outcomes of cardiopulmonary resuscitation (CPR) (3). All hospitals have a CPR team in place, and automated external defibrillators (AEDs) are omnipresent in public spaces in the developed world. Often a dramatic event within health care settings, CPR has been further dramatized in movies and television shows.

In real life, physicians perform this ritual in hospitals repeatedly and reflexively. Too often we perform it regardless of prognosis, without knowing whether the patient desires it, and knowing that we may do harm. Convention is that, without an explicit do-not-resuscitate order, consent for CPR is implicit. This practice assumes that most reasonable persons would opt for this potentially life-saving emergency intervention. However, depending on the underlying diagnosis, the circumstance in which cardiac arrest occurs, patient age, and comorbid conditions, the outcome of CPR is typically dismal. Studies show that up to 20% of patients with in-hospital cardiac arrest who receive CPR survive to hospital discharge (4). However, outcome depends on the circumstances. When an otherwise healthy, middle-aged patient has a coronary event with a subsequent witnessed ventricular fibrillation arrest in a hospital, there is a strong indication for CPR because the chances of long-term survival after CPR may be similar to a patient who did not have a cardiac arrest (5). However, a hospitalized elderly patient with metastatic cancer who has a cardiac arrest with a rhythm that is not ventricular fibrillation has a small chance of survival to discharge and a high probability of injury during CPR and significant functional impairment if they survive (6). Patients are also at risk for life-changing impairment if they survive the acute resuscitation event. The key question then is whether the patient, under his or her specific circumstances, wants to undergo CPR or other aggressive life-sustaining treatments should the likelihood of survival be poor or chance of harm and debility high. To answer this question, we must begin discussions early to educate patients about the realistic prognosis of patients like them who receive CPR and seek their partnership in deciding whether CPR is in their best interest.

The impetus to perform CPR springs from multiple sources: the lure to use technical treatment approaches, the fear of being judged professionally or sued if the patient dies without a resuscitation attempt, and overoptimism about prognosis after CPR among both clinicians and patients. Acknowledgment that pa-

tients may prefer death to aggressive, life-sustaining interventions has led to an increasing acceptance that CPR may not be indicated for many patients. Yet, perhaps because we and our patients worry that do-not-resuscitate status may have a negative influence on the quality of care and attention that patients receive in hospitals, many patients for whom CPR is unlikely to help end up getting this intervention by default.

The recent Institute of Medicine (IOM) report "Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life" offers a model of care for patients with advanced illness, stating that it should be seamless, high-quality, integrated, patient- and family-centered, and consistently available (7). Those trained and skilled in giving such care should also deliver it. The IOM advises us to communicate better about prognosis and clinical options. Having discussions about preferences regarding end-of-life care early in the course of illness makes it more likely that care will be consistent with patient goals. The fear that end-of-life discussions increase depression or anxiety or cause the patient to lose hope is unfounded (8).

Hospitals must be environments where deteriorating vital signs are evaluated quickly, patients will not have acute events unnoticed, and CPR is performed only when clinically indicated, on the basis of patient preferences and the realistic chances of benefit. This may seem self-evident. Although our awareness of these issues is improving, health care teams often still do not know whether their patients want CPR. A recent story in *Annals Graphic Medicine* powerfully illustrates the problem (9).

Cardiopulmonary resuscitation opens the door to a cascade of other aggressive interventions and questions. After CPR, patients who have a return of spontaneous circulation will be transferred to an intensive care unit. Will dialysis be instituted if renal function declines? Do we add pressors, antibiotics, or other treatment when the clinical situation is clearly and unremittably declining? Because of the technological advances in medicine, whether to initiate CPR and the cascade of complex levels of treatment that can follow it must be part of every discussion in the face of a life-altering diagnosis. Yet, while physicians have been writing and talking about this issue for decades, we too often fail to practice in accord with these sentiments.

Discussions about CPR and other aggressive interventions must be an integral part of physicians' discussions with patients at the time of hospitalization, and the results of these discussions must be documented in the health record and immediately available to the en-

tire care team. Discussion should occur at every hospitalization even with patients who have an advance directive in place. Advance directives are living documents that may change with time because of evolving preferences and clinical circumstances. Discussions need to be initiated early and continually updated, particularly at the time of hospitalization, so that the patient, care team, and family have full understanding of the appropriate action should a cardiac arrest occur.

Hospitals must be environments where patients routinely learn about their options and prognosis and express their preferences. In an era when we are striving for better value in health care (10), we must be frank with ourselves and our patients that CPR often offers limited value. These are all messages heard before. But they remain essential—and the persistence of these problems demands that we continue to remind ourselves. Together, patients and physicians can enhance the appropriate use of CPR by recognizing the limits of what it offers some patients and gaining a better understanding of our patient preferences.

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