prevent death or disability. Any delay in therapy while awaiting consent can jeopardize the patient’s chance of survival. In addition, families are often not available for consent or are too distraught to be objective.

Under the “emergency exception to informed consent” of the United States Food and Drug Administration, consent may be waived in life-threatening situations when there is no better alternative. Based on these considerations, Abramson et al. proposed the use of “deferred consent” for resuscitation research. They proposed that, under specific conditions, experimental treatment could be initiated prior to obtaining consent but within a reasonable time period “deferred consent” should be obtained. Since the treatment has already been initiated, “deferred consent” in fact is consent to continue therapy and to participate in the clinical trial. Experience with deferred consent in the Brain Resuscitation Clinical Trial II has demonstrated that families were satisfied with this approach.

Anstadt et al. agree that use of deferred consent could decrease the time required to initiate DMVA during cardiac arrest and thereby lead to more favorable outcomes. The fact that there were no survivors in this study should not imply that DMVA does not have a potential role in cardiac resuscitation. What should this role be in CPR-resistant cardiac arrest cases, particularly vis-a-vis other CPR alternatives, eg, cardiopulmonary bypass (CPB)? Certainly, for DMVA to be beneficial it needs to be employed earlier. The first logical step would be a trial employing DMVA in patients who do not respond quickly, ie, within 10-15 min, to routine CPR-advanced life support (ALS), but have a good chance of benefitting from DMVA. We are currently conducting such a feasibility trial of CPB in 15 to 60-year-old patients who have suffered a witnessed cardiac arrest and who have had less than 6 min of no flow (arrest without CPR) and less than 30 min of CPR-ALS.

Although DMVA can provide similar hemodynamics, CPB does not require a thoracotomy. Furthermore, CPB can control temperature and blood composition as well as reperfusion pressure and flow. This may be critical if other therapies are added, such as hypothermia, hemodilution, or brain-resuscitating drugs with cardiovascular depressant side effects. On the other hand, CPB requires a blood-artificial surface interface, systemic anticoagulation (not with heparin-bonded systems, however), and vascular access, all of which may be difficult during CPR. In addition, the nonpulsatile flow generated by CPB may be less desirable than the pulsatile flow obtained with DMVA. As clinical feasibility trials progress, a comparative trial may be indicated to determine the relative advantages of these interventions during resuscitation.

Both CPB and DMVA offer advantages over standard CPR-ALS that may allow successful resuscitation of patients who remain pulseless despite standard CPR-ALS. In the future, both may have specific roles in our resuscitation armamentarium.

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Biomedical Ethics in the 1990s

Biomedical ethics came of age in the 1980s. In 1976, the Quinlan case heralded the necessity for actively dealing with life and death issues when confronted with hopelessly ill patients on life support. In 1983, the President’s Commission for the Study of Ethical Problems in Medicine and Biomedical Research presented their extensive and ground breaking report to the nation. Concurrently, physicians, lawyers, and scholars began to develop a rapidly growing literature examining old, new and future potential ethical problems. However, the biomedical technology of the 1980s has progressed so rapidly that, wherever we turn, we are faced with novel and highly complex ethical quandaries: the use of human fetal tissue, gene therapy in man, genetic alteration of non-human species, and newer approaches to in vitro fertilization. Besides trying to respond to advances in biomedical technology, we remain conflicted over older and equally profound ethical dilemmas: the role of abortion, use of animals in education and research, relieving suffering with powerful analgesics in irresponsibly, gravely impaired patients which might hasten

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their deaths, ethical misconduct in science, and withdrawing food and water from patients in persistent vegetative states (Cruzan case). As if all of this is not enough, physicians are beginning to be pressured into becoming economic gatekeepers deciding which patients will receive which expensive "state-of-the-art" diagnostic procedure or therapy. This new trend results from our health care system being out of control, fiscally unmanageable, riddled with entrepreneurial special interests, and lacking effective leadership from organized medicine, or the executive and congressional branches of our government. What is going to happen over the next decade?

There is no question that dilemmas in biomedical ethics will worsen and intensify as our society becomes more complex, science moves forward, and our country continues to erode its economic base with low level productivity, legal and corporate parasitism, and deficit financing. However, there is hope. Over the past few years, our nation has begun to focus on our ethical dilemmas and is struggling to deal with them: insider trading, savings and loan fraud, and congressional, defense department, and executive branch misconduct. Of interest, universities around the country have begun undergraduate courses and graduate programs in ethics. There are early signs that more students are becoming interested in ethics, fundamental values, and helping others who are in need. Certainly, many people are sad and angry at the present ethical malaise which has become apparent in our country. Obviously, our ethical problem areas remain in dire need of attention and thoughtful resolution: the quality of life of the underprivileged, a code of ethics for government employees (one out of six Americans), and renewal of fundamental ethics among many of our citizens (from business practices to neighborhood responsibilities).

How can individuals in biomedicine confront and solve ethical dilemmas? In order to decide whether or not withholding or withdrawing life support is appropriate, a new therapeutic drug should be used on how to obtain informed consent from patients in a clinical study, we must understand general ethical principals.1 The first is beneficence which means to do good or, in medicine, to restore health and relieve suffering. The second principle is nonmaleficeence or to do no harm. The third principle is autonomy which means, in America, a legally competent adult who is not trying to commit suicide is in charge of his or her own health care. The fourth principle is justice which supports the fair allocation of medical resources. These principles must be studied and discussed by physicians and medical scientists in order to discover their importance and use. Often, these principles come into conflict with each other when analyzing a specific ethical problem such as: the autonomy of a patient may be compromised if the patient wants a procedure which a physician feels will not be good for the patient (no beneficence) and could hurt the patient (nonmaleficeence).

What can we do to optimize ethical decision-making in medicine and research in the 1990s? First, we must all become conversant with ethical principles and openly discuss them with colleagues, patients, and the public. Seminars, grand rounds, ethics committees, and community education should be encouraged. Second, communication is key in thoughtful decision-making. Fundamental to good communication is truth telling. Nothing is more powerful or simpler than honesty. The basis of the doctor-patient or scientist-public relationship is honest communication. Third, physicians are not supposed to be business entrepreneurs in the practice of medicine. Becoming a physician was never intended to provide a means for accumulating great wealth. There is nothing wrong with a good living, but to bring home many hundreds of thousands of dollars in personal income while our system is not providing care to over 35 million Americans, does not make sense. Fourth, we are not economic gatekeepers. Our commitment is to achieve what is in the best interests of our patients. If the government tries to force us to become economic rationers (limiting our ability to provide what we believe is appropriate and indicated quality care), then we must speak truthfully and openly with our patients, local and national communities and ask for their guidance. As health care providers we have an ethical responsibility to speak out and take action along with our fellow Americans (non-health care professionals) to rescue our floundering national health care system.

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