

BRITISH MEDICAL JOURNAL

LONDON, SATURDAY 13 NOVEMBER 1982

Thou shalt not strive officiously

Most medical students encounter the dictum "Thou shalt not strive officiously to keep alive" early in their clinical years. Like other memorable directives it seems unambiguous and simple. Yet in the years ahead the student—and, later, the doctor—will not always find its meaning or application easy. "Strive" is not defined, and with advances in medical technology the potential scope for striving is almost infinite. Nor is "officiously" defined—a word with a wide range of meaning in different societies and different cultures.

When a patient is gravely ill the objectives are the same on both sides of the Atlantic (to relieve suffering, to heal where possible, and to conform to the patient's expressed wishes), but there are substantial differences in teaching hospitals in Britain and the United States in the application and implementation of the "do not resuscitate" order (also known as "no cardiopulmonary resuscitation"—"no CPR"). Few here, and no one in the United States, would disagree with the need for a carefully considered elective decision whether or not to resuscitate a patient in the event of cardiorespiratory arrest. No longer should the choice be left unspoken, undiscussed, and, less important, unrecorded. To leave the decision to the discretion of the staff on duty at the time is an unmerited delegation of responsibility to those who in the moment of crisis may be least conversant with the patient's illness, his wishes or those of his next of kin, or the consultant's considered opinion.

In Britain it is usually, or should be, the consultant who decides whether to resuscitate or not. This decision, often made in discussion with the house staff and ward sister, is predominantly based on clinical judgments and consideration, fallible though these may be. Better than anyone else the consultant and his team know the nature of the patient's disease or diseases and the likelihood of their responding to treatment. Quality of life is relative and should be assessed in relation to the age, state of health, and personal aptitudes and interests of each individual patient.¹ The age of the patient should not be a prime factor in making the decision, and the younger the consultant the more he should consciously guard against this bias, realising that the physically restricted life of a patient aged 80 may be just as enjoyable as his own.

Old Mrs Cox is aged 79, and the same consultant has cared for her and her rheumatoid arthritis for 20 years. Now she is in for a hip replacement. Mrs Cox, despite much adversity and pain, has always been an uncomplaining "goer." She might arrest postoperatively. Rightly or wrongly, and some would take exception to this, the consultant has not discussed with Mrs Cox

whether she would want to be resuscitated or not. He knows, or thinks he does, what her wishes would be because over the years he has learnt that Mrs Cox's main joy in life is her husband and looking after him. On many outpatient visits she has reiterated, "He would be lost without me; I hope he goes before me." Furthermore, it is she who has chosen to have the hip operation.

The decision for Mr O'Flarty is of a different order. This is the third admission since Christmas of a lovable old vagrant who "lives" in the neighbouring Salvation Army Hostel and has severe cor pulmonale heart failure, each admission precipitated by acute-superimposed-on-chronic bronchitis and emphysema. "Do not resuscitate" is the policy that the medical team agrees, but this does not mean that energetic treatment will not be given or that the efforts of the ward physiotherapist will be lessened despite Mr O'Flarty's unconvincing profane protests. Heroics, however, will not be applied; the chronic pulmonary changes are irreversible, and on his second admission an opacity highly suspicious of a carcinoma had been detected in the right middle lobe. "Exclude active tuberculosis and look for malignant cells in the sputum. If malignant, probably best left alone" was the note of the consultant in thoracic medicine. The junior consultant in thoracic surgery came. Would he consider bronchoscopy or a needle biopsy? "Too peripheral for bronchoscopy likely to be useful. No indication for needle biopsy because resection is out of the question in this patient" wrote the surgeon.

By no means are all decisions, right or wrong, so easily made even though consciously or unconsciously they are based on a number of principles.² In medical ethics life is not the ultimate good, nor death the absolute evil.³ Not to harm the patient (*primum non nocere*) has Hippocratic origins. To restore health or relieve suffering does not imply that it is ethically right to prolong life at any cost. To resuscitate or not to resuscitate is the concern of only a small segment of medical ethics; closely related is the decision to treat or not to treat. Must a patient's expressed wish not to be treated, or not to have a particular form of treatment, always be respected? Only rarely can the answer be other than yes, as in the case of a great cardiologist who after a myocardial infarct uncompromisingly stated that if he developed ventricular fibrillation he did not wish to be defibrillated. He died, and the world was deprived prematurely of a great contributor. That was his choice. A patient with disseminated cancer may rightly decline chemotherapy. Few doctors will respond with the anger of rejection. But what of a child who is a Jehovah's Witness dying of exsanguination after a car accident? This is one of the few instances in Britain when a magistrate's order may be obtained to give the child blood.

In Britain patients and their families are, perhaps, more

trusting of medical advice than in north America. Though our management of a lingering fatal illness is, one hopes, humane, we are not immune from the accusation of prolonging dying. Such may be inescapable and inevitable when dealing with an emergency whether in the old or the young. The surgeon who operates on an elderly man with an aortic dissection cannot know the degree of associated cerebral or renal ischaemia, nor the extent of brain damage in a comatose teenage motorcyclist admitted with multiple injuries. But in Britain when some days later the chips are down, the medical team is under few constraints—familial, ethical, and, least of all, legal—to act as it sees fit in the best interests of the patient.

Now let us look at the scene in the United States, where the decisions on these matters may be similar but their implementation is taken more seriously. A recent statement¹ on a policy appropriate to teaching hospitals advocates the following guidelines (paraphrased for British usage) for reaching a “do not resuscitate” decision which will be based on, firstly, careful assessment of the patient’s medical state; secondly, the deliberations of the consultant, the senior registrar, and other members of the ward team; and, thirdly, agreement between the consultant and the patient if he is mentally competent, and with the family if he is not. The authors emphasise that “do not resuscitate” is compatible with maximum therapeutic care; the patient may be receiving vigorous medical support and additional treatment may be initiated. The reasons for the decision not to resuscitate should be recorded in the patient’s notes by the houseman and countersigned by the consultant. The decision should be reviewed at regular intervals and may be rescinded at any time. This is unlikely to happen if the initial decision is based on sound medical evidence, and no such decision should have been reached if the total evidence is incomplete or inadequate, though, of course, the wishes of the patient or, if he is incompetent, of his family may change. The “do not resuscitate” decision is part of the broad concept of allowing the patient the right to die with dignity (deceptively simple though this concept may be) and without heroic medical intervention.

As in Britain, the decision not to resuscitate is reached in the United States for the same variety of reasons—poor prognosis, extreme suffering from an irremediable condition, the expressed wishes of the patient, and, less important, advanced age. In the United States financial considerations may be cripplingly relevant and colour the wishes of the patient or next of kin. In some American hospitals there is a biomedical ethics committee, which at the request of a consultant will advise on the decision to resuscitate or not and on issues relating to the treatment of a patient with irreversible disease.⁴⁻⁶

These formal policies and carefully written directives in North America^{7,8} may seem at variance with the apparently more informal and often verbal decisions in Britain, which may obviate the need for emotional and prolonged discussions, potentially painful to the patient and next of kin. Why have these differences arisen? Why do the Americans take what must often be a “hard” (in several senses of the word) line? Probably for five main reasons: firstly, to improve efficiency of management and remove dubiety; secondly, because American patients may be better educated and certainly are better informed on medical matters (no doubt the British will catch up, though some of our television may be irresponsibly inaccurate or unbalanced; in discussion with their doctor, more American than British patients would fully comprehend that resuscitation “may be followed by the need for life-support including intratracheal tube, tracheotomy, respiratory venti-

lation systems, arterial lines and monitoring, and intravenous medication, all for an indeterminate period”¹); thirdly, because the decision to resuscitate may have such major financial implications to the patient or the family that their consent is essential; fourthly, because of the law, which differs from State to State; and, lastly, because of the expectations of some of the public and some of the medical profession.

Undoubtedly American preoccupation with these matters is determined by their citizens’ outrageous (as one respected emeritus professor of medicine put it) litigiousness. The atmosphere can be sensed from a sticker on the rear bumper of a car which read “Become a doctor and help a lawyer make a living.” The right of a mentally competent adult to refuse further treatment is widely accepted and spelt out in “The Patient’s Bill of Rights,” which is posted in every approved American hospital, and in many each patient on admission is given a copy. There can, however, be bitter arguments when the patient is no longer competent or is unable to make his wishes clear. The motivations of family members may be complex, self-serving, and not always obvious.¹ The problem is confounded when the decision of the patient is at variance with the next of kin or with that of the doctor. For example, if a mentally competent patient elects for resuscitation in the event of arrest, this cannot be rescinded without a court order should the patient subsequently become incompetent and because of his deteriorating condition both the consultant and next of kin agree that not to resuscitate would be a wiser course.⁹ To resuscitate without informed consent may lead to a charge of battery. Not to resuscitate or failure to strive hard enough (in the family’s judgment) may be followed by an accusation of murder, manslaughter, negligence, or conspiracy. In the current American atmosphere of hostility towards, and mistrust of, physicians perhaps the patient stands to lose most,² because the doctor must spend precious time and energy in protecting himself as best he can from such charges.

American doctors are very well trained and updated in cardiopulmonary resuscitation. Their technical equipment is unsurpassed and widely available. In an affluent society with high regard for human life and in which the public and the profession have been conditioned to expect aggressive life support as a routine part of medical care,¹ it is not surprising that some people have sought to protect themselves from over-zealous, officious striving. To this end the “living will” has been invented in which is declared, duly signed by the testator and witnessed, something to the effect that “if at any time I should suffer any incurable disease or injury and it should be medically determined that treatment will only prolong my dying, I direct that life-sustaining treatments will be withheld or withdrawn, and I be permitted to die naturally, aided only by those measures necessary for my comfort.” We may question, however, whether a healthy person can project his or her feelings realistically about resuscitation to a time and circumstances not yet experienced.

There seems no call for such measures in Britain, but the present difficulties in the United States can best be avoided here by sensitive awareness of an ever-present problem. In many acute wards in teaching hospitals the unspoken policy for most patients will be resuscitation in the event of cardio-respiratory arrest. For a few, depending on the nature of the ward, the consultant may opt not to resuscitate, and this decision should be reached in collaboration with the house staff and ward sister. Whatever may or may not be written in the patient’s notes the sister must know of the decision, because if a crisis arises it is usually the nursing staff who have to act first. When resuscitation fails, perhaps because of

irreversible brain damage, let us not prolong the dying once the criteria for brain death has been established. Because of—not despite—their grief, the next of kin of a younger patient should be given the opportunity of offering certainly the kidneys and possibly the heart for the relief of another patient who may have suffered long. In Britain sound, unhurried clinical judgment (supported when necessary by other specialists), sympathy, understanding, and mutual trust, rather than abstract principles and printed policy statements, have in general stood patients in good stead.

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Hazards of hyposplenism

The word "hyposplenism" was introduced by Eppinger¹ to describe the condition which develops after splenectomy, and Schilling² used the same term to describe the blood picture which accompanies splenic atrophy in sprue. Haematological features of hyposplenism include changes in the appearance of the red blood cells, with the presence of target cells, schistocytes, and Howell-Jolly bodies, a moderate leucocytosis, and thrombocytosis. The appearances of the blood film are so characteristic that other laboratory tests are unnecessary in most patients. The diagnosis can be confirmed, however, and lesser degrees of hyposplenism can be detected by using any of a variety of tests of clearance of isotope-labelled damaged red blood cells.

Though the spleen is one of the principal lymphoid organs of the body and its phagocytic function is of particular importance for removal of particles from the blood stream, the absence of a spleen leads to only minor deficiencies in specific humoral and cellular immunity. These comprise low concentrations of serum IgM³ and a failure to switch from synthesis of IgM to synthesis of IgG after intravenous immunisation.⁴

Asplenia or hyposplenism may be congenital, iatrogenic, or acquired. Congenital asplenia is rare and often associated with fatal cardiovascular anomalies.⁵ The most common cause of asplenia is splenectomy—performed because of trauma to the spleen, in the management of haematological disease, or as part of other abdominal operations. Infrequently the spleen becomes infarcted from atheroma of the splenic artery or thrombosis of the splenic vein, and the atrophy of the spleen in patients with sickle-cell disease is also thought to

be due to multiple small infarctions. In Britain, if a hyposplenic blood film is unexpectedly discovered on routine haematological screening the diagnosis is likely to be asymptomatic coeliac disease.^{6,7} Up to 30% of patients with adult coeliac disease or dermatitis herpetiformis have associated splenic atrophy,⁸⁻¹¹ with the spleen being reduced to a small fibrous organ which weighs only 20-30 g. None of the clinical features, nutritional aspects, or complications of coeliac disease correlate with the presence or absence of splenic atrophy,¹¹ and splenic function does not return to normal with a gluten-free diet.¹² Hyposplenism is only one of several immunological features of coeliac disease which still await explanation.

An association between hyposplenism and another gastrointestinal disease, ulcerative colitis, was reported by Ryan and his colleagues in 1974¹³ and soon confirmed by others.¹⁴ The Sheffield group subsequently published a prospective study of splenic function in 55 patients with inflammatory bowel disease, selected to vary in clinical severity and distribution of disease.¹⁵ Seven of the 24 patients with extensive ulcerative colitis fulfilled all the criteria for hyposplenism, with typical appearances of their blood films and delayed clearance of heat-damaged red blood cells. In a further three of these patients there was evidence of impaired though not absent splenic function. Hyposplenism was not present in 11 patients with distal ulcerative colitis and was found in only one of 20 patients with Crohn's disease. In striking contrast to coeliac disease, splenic function was found to fluctuate with time in patients with ulcerative colitis. All of the patients concerned had had normal blood films at the time of diagnosis of ulcerative colitis or Crohn's disease, and the features of hyposplenism had developed either during severe exacerbations of the disease or in patients with persistently active colitis. In four of the seven patients with ulcerative colitis, the appearances of the blood films returned to normal after successful surgical or medical treatment of the colitis. A similar state of transient reversible hyposplenism has been recognised in some patients with sickle-cell disease, in whom so-called "functional asplenia" is found during a sickling crisis, and can even occur in patients with splenomegaly, though the mechanism is uncertain.¹⁶ The clinical effects and the potential hazards to the patient are similar whether the spleen is small or large.

In the absence of splenic phagocytic function, and particularly when titres of opsonising antibodies are low, these patients have impaired immunity to blood-borne bacterial and protozoal infections. The syndrome of overwhelming infection after splenectomy, in which there may be progression from complete health to death in a few hours, is a septicaemia, often with disseminated intravascular coagulation, due to infection with *Streptococcus pneumoniae* or *Haemophilus influenzae*.¹⁷⁻¹⁹ Fatal meningococcal or gonococcal septicaemia has also been reported,^{20,21} and the protozoal infections that occur in asplenic people include malaria, babesiosis, and toxoplasmosis.^{22,23} Though these infections are serious, their risk for an individual patient is low—for example, in 55 children followed up after splenectomy for up to 24 years only one infection was caused by *Str pneumoniae*.²⁴ A group of 740 American servicemen whose spleens were removed because of trauma during the second world war had a higher than average mortality from pneumonia (six deaths versus 1.74 expected) and, interestingly, also from ischaemic heart disease (41 deaths versus 30.3 expected)—the hypercoagulable state associated with thrombocytosis probably accounted for the increased risk of fatal myocardial ischaemia.²⁵

Surgery in hyposplenic patients and the inclusion of