

# An Ethical Look at Intensive Care for Patients with Malignancies

J.-Cl. Chevrolet and Ph. Jolliet

INTRODUCTION

PROGRESS IN scientific knowledge and techniques has enabled oncologists to prolong the survival of and often to cure previously moribund patients. This is often achieved with complex and costly treatments, requiring highly specialised monitoring. In the same manner, intensive care units (ICU) can today manage patients who in the past would have been beyond treatment. With the acute crisis over, survival can be of good quality, which justifies the means committed [1]. However, in both oncology and critical care medicine, problems can be very complex, and costs and patients' endurance are not limitless.

Here we reflect on problems common to these two fields of medicine. The time when a patient with a malignant tumour was barred access to intensive care is thankfully past, and we now have tools that allow better prognostic evaluation and more precise admission criteria. These tools are of a technical and an ethical nature. Similar considerations arise from the intensive care considerations of patients with AIDS [2]. Even though AIDS and cancer patients are different, there is similarity in the medical, paramedical, social and human approach to these two groups, especially when integrating the most recent research data with less quantifiable aspects, such as ethics and patients' motivations [3].

THE ETHICS OF INTENSIVE CARE

Only in the ICU can certain invasive life-support measures be applied. The price to pay for this high technology is a large concentration of doctors and nurses, as well as equipment that is costly to purchase and maintain. Even in developed nations, financial resources are not unlimited, and the national health budget must be equitably divided between research, patients' care and teaching. This implies a policy in managing inpatients and for criteria for admission to the ICU as well as termination of such care that is based on flawless science and ethics [4].

The ethics should accord with the basic Hippocratic principles on medical practice. These can be summarised in two universally accepted, if not always applied, axioms: to maintain life and to ease the patient's suffering. Intensive care, and perhaps an increasing proportion of medicine as invasive techniques evolve, puts these two axioms in contradiction. The need for guidelines has been felt by doctors in everyday practice. Therefore pragmatic ethical principles have developed, based on the consensus of clinicians in that field.

Three fundamental principles have emerged to guide ICU doctors: (1) a reasonable potential for recuperation must be established; (2) the patient's right to self-determination must, if possible, be preserved in defining to what extent life-sustaining

Table 1. Survival of cancer patients in intensive care units

Ref.	No. of patients	ICU mortality (%)	Mortality-associated factors
Haemolymphadenopathies			
10	77	80	Respiratory failure Mechanical ventilation Shock
12	260	43	Sepsis Mechanical ventilation MOSF
19	81	74	Age Respiratory failure MOSF Cancer recurrence
20	60	78	Cancer recurrence MOSF Neutropenia
21	113 (children)	48	Respiratory failure Mechanical ventilation Shock
Solid tumours			
22	46	85	Respiratory failure Mechanical ventilation
11	24	54	Respiratory failure

MOSF = multiple organ system failure.

measures are to be pursued; and (3) to guarantee equity, there should be no outside influence or non-medical imperatives (e.g. financial) over the distribution of a hospital's resources. Ethical reflection in intensive care leads to a consensus on these three principles, whether dogmatic (based on religious principles) or utilitarian (based on trial and error) [6]. This explains why these principles have an intrinsic value and a practical utility confirmed by everyday experimentation and in accord with our Judeo-Christian philosophical and religious concepts.

The first principle, (life-saving potential) is often difficult to follow in the two situations usually confronting the intensive care doctor: the admission to and discharge from the ICU of patients for which no treatment is curative, and the discontinuation of life-support. Although prognosis can be fairly easy to determine (diabetic coma, acute asthma, or, at the other end of the spectrum, cardiogenic shock without hope of cardiac transplantation, fulminant hepatitis complicated by encephalopathy and adult respiratory distress syndrome), many cases are so complex that prognostic evaluation becomes a matter of opinion [7]. Cancer patients are often in an intermediate category: their prognosis is uncertain, predicting treatment efficacy

Correspondence to J.-Cl. Chevrolet.  
J.-Cl. Chevrolet is at the Soins Intensifs de Médecine and Division de Pneumologie and Ph. Jolliet is at the Clinique Médicale, Hôpital Cantonal Universitaire 1211, Genève 4, Switzerland.  
Received 3 Oct. 1990; accepted 12 Nov. 1990.

is mostly statistical, and, since there is a hope for cure, any dogmatic attitude is difficult to justify. However, therapeutic escalation can sometimes be irrational, based on fear of failure [8] or error, or induced by a vicious circle in which each further treatment is justified by the huge investment already entered into [9]. Cancer patients do not differ from other patients in factors determining short-term ICU survival, and the same evaluation can be applied to both populations [1, 10]. For ICU patients, not only must short-term prognosis be good, but also quality of life should be acceptable to the patient to justify any life-prolonging treatment. Unfortunately, even though data exist on survival of cancer patients after discharge from the ICU [11, 12], information on the quality of that survival is scarce [13].

The second principle (patients' self-determination) has not been discussed specifically in oncology. However, cancer patients or their families occasionally refuse treatment, sometimes because of involvement in right-to-die groups. In such situations, the ICU doctor's main task is to evaluate the extent to which the patient is free from self or group pressure. The Swiss Academy for Medical Sciences has published reasonable guidelines that we consider to reflect a consensus among ICU physicians and which bear the merit of leaving sufficient freedom of action while being practical [14].

The third principle (equity) is not specific to oncology. ICU care of cancer patients must follow curability criteria, and it is only fair that these patients be equitably compared with those with other diseases when admission is needed and there is limited availability of ICU beds [15, 16]. This entails knowledge of prognosis and the establishment of guidelines by hospital management to protect doctors from undue pressure in decision-making [17].

Thus quantitative and qualitative survival considerations are most important in making the right decisions for management of cancer patients in the ICU.

### CANCER PATIENTS AND INTENSIVE CARE

Like all patients, cancer patients may be admitted to the ICU for many reasons: (1) disease not linked to their malignancy, such as incarcerated inguinal hernia complicated by myocardial infarction during surgery or severe acute asthma; (2) new investigational drugs must sometimes be administered under strict monitoring conditions [18]; and (3) complications specific to the type of tumour, such as superior vena cava syndrome, acute hyperviscosity syndrome or paraneoplastic respiratory failure. It is thus necessary to know the prognosis of each of these problems. A possible approach would be to stratify cancer patients admitted to the ICU into different groups, and to compare their prognosis with that of a control group of ICU patients who do not have cancer. In Hauser *et al.*'s series [11] cancer patients had a 55% mortality rate; survival was 83% in non-cancer patients. Even though the study was retrospective and admission criteria and treatments were heterogeneous, such a study demonstrates that indiscriminate admission of cancer patients is probably unjustified. It is thus necessary to stratify these patients. If patients admitted for acute respiratory failure were excluded [11], survival was similar (75% for cancer patients, 83% for non-cancer patients).

Many studies have shown that for patients with haematological malignancies or solid tumours, death in the ICU was usually linked to a small range of clinical situations (Table 1): acute respiratory failure necessitating intubation and mechanical ventilation for more than a few days, sepsis or organ failure (either simultaneous or sequential) corresponding to MOSF [23].

The ICU survival of cancer patients compared with non-cancer patients is the same in the presence of a major septic syndrome and/or multiple organ dysfunction [24]. In both situations, mortality reaches 100% when three major organ systems fail [19]. A rigorous comparison of patients in severe sepsis or MOSF has not been done. However, one study [20] has shown that for a given Apache II score, a 10–15% excess mortality can be expected in cancer patients.

Prognosis of cancer patients on ICU discharge is not the only important point. Medium and long-term quality of life must be acceptable and human dignity must be preserved. Information about prognosis after ICU discharge is scarce. ICU mortality was 43% for patients with haematological malignancies, while total hospital mortality was 57%. After 6 months, only 19% of the patients were still alive, this figure dropping to 13% after 1 year [12]. Quality of life has been rarely studied. It seems, however, that when medium-term survival is possible, quality of life is good, since patients in the most serious condition have shorter survival [13].

We must also remember that complications specific to cancer patients may occur that can mimic the sepsis syndrome or acute respiratory failure. Such conditions have been described in bone marrow transplant recipients with graft vs. host reaction, which was reversible by increasing immunosuppression [25]. With more studies, other such treatment conditions may be documented. ICU specialists are already joining with oncologists in some reference centres, and some observers have outlined the potential benefits of such units [26].

The development of professional teams is of great value in general purpose ICUs, and objective evaluations of the quality of care and patients' survival leaves no doubt that such specialisation for medical and paramedical staff is necessary [27]. ICUs in general and oncology units in particular can be viewed as pioneering fields in which new technologies have evolved. But such treatments are sophisticated, difficult to manage and costly, and put pressure on hospital management when planning ICU facilities.

### CONCLUSIONS

In years past the very idea of admitting a cancer patient to the ICU was regarded as absurd. We are now trying to evaluate such admissions on scientific grounds, as should be the case for any category of patient. Indeed, the prognosis of a coronary patient with anterior myocardial infarction presenting with a new infarction is poor [28]. Yet, no ICU physician would hesitate to admit such a patient, as tradition and habit are strong factors in decision-making. The most important changes are to come. In the next few years, we will see oncologists working in ICUs and, in larger hospitals, managing specialised ICUs. This prospect is valuable: after all, oncology is one of the few specialties that can offer curative treatment to certain patients.

1. Dragsted L, Qvist J, Madsen M. Outcome from intensive care. A 5-year study of 1308 patients: short term outcome. *Eur J Anesthesiol* 1989, **6**, 131–144.
2. Wachter R, Luce J, Turner J, Vorberding P, Hopewell C. Intensive care of patients with the AIDS. *Am Rev Respir Dis* 1986, **134**, 891–896.
3. Luce J, Wachter M, Hopewell C. Intensive care of patients with the AIDS: time for reassessment. *Am Rev Respir Dis* 1988, **137**, 1261–1263.
4. Zimmermann J, Knaus W, Sharp S, Anderson A, Draper E, Wagner D. The use and implications of "do not resuscitate" orders in intensive care units. *JAMA* 1986, **255**, 351–356.

5. Shragg T, Albertson T. Moral, ethical and legal dilemmas in the intensive care unit. *Crit Care Med* 1984, **12**, 62–68.
6. Beauchamp T, Childress J. *Principles of Biomedical Ethics*, 3rd ed. New York, Oxford University Press, 1989, pp. 25–66.
7. Baskett P. The ethics of resuscitation. *Br Med J* 1986, **293**, 189–190.
8. Illich I. *Medical Nemesis*. London, Calder and Boyars, 1974.
9. Jenner B. The inappropriate use of intensive care. *Br Med J* 1984, **289**, 1709–1711.
10. Schuster D, Marion M. Precedents for meaningful recovery during treatment in a medical intensive care unit. Outcome in patients with hematological malignancy. *Am J Med* 1983, 402–408.
11. Hauser M, Tabak J, Baier H. Survival of patients with cancer in a medical critical care unit. *Arch Intern Med* 1982, **142**, 527–529.
12. Brunet F, Lanore J, Dhainaut J, *et al.* Is intensive care justified for patients with haematological malignancies? *Intensive Care Med* 1990, **16**, 291–297.
13. Hinds C, Yau E. Intensive care for complications of malignant disease. In: Vincent J. *Update in Intensive Care and Emergency Medicine*. Vol. 10, Berlin, Springer, 1990, pp. 836–850.
14. Schweizerische Akademie der medizinischen Wissenschaften/Académie suisse des sciences médicales. *Directives Concernant l'Euthanasie*. Schwabe et Cie, Basel, 1976, 1–6.
15. Strauss M, LoGerfo J, Yeltatzie J, Temkin N, Hudson L. Rationing of intensive care unit services. *JAMA* 1986, **255**, 1143–1146.
16. Turnbull A, Carlon G, Baron R, Sichel W, Young C, Howland W. The inverse relationship between cost and survival in the critically ill cancer patient. *Crit Care Med* 1979, **7**, 20–23.
17. Engelhardt H, Rie M. Intensive care units: scarce resources and conflicting principles of justice. *JAMA* 1986, **255**, 1159–1164.
18. Sculier J, Bron D, Verboven M, Klastersky J. Multiple organ failure during interleukin-2 administration and LAK-cells infusion. *Intensive Care Med* 1988, **14**, 666–667.
19. Bui-Xuan B, Guillaume C, Butin E, *et al.* Pronostic des hémopathies malignes en réanimation. *Réan Soins Int Méd Urg* 1987, **3**, 113–118.
20. Lloyd-Thomas A, Wright I, Lister T, Hinds C. Prognosis of patients receiving intensive care for lifethreatening medical complications of haematological malignancy. *Br Med J* 1988, **296**, 1025–1029.
21. Butt W, Barker G, Walker C, Gillis J, Kilham H, Stevens M. Outcome of children with hematologic malignancy who are admitted to an intensive care unit. *Crit Care Med* 1988, **16**, 761–764.
22. Ewer M, Ali M, Atta M, Morice R, Balakrishnan P. Outcome of lung cancer patients requiring mechanical ventilation for pulmonary failure. *JAMA* 1986, **256**, 3364–3366.
23. Pinsky M. Multiple systems organ failure: malignant intravascular inflammation. *Crit Care Clinics* 1989, **5**, 195–198.
24. Knaus W, Draper E, Wagner D. Prognosis in acute organ system failure. *Ann Surg* 1985, **202**, 685–693.
25. Robbins R, Linder J, Stahl M, *et al.* Diffuse alveolar hemorrhage in autologous bone marrow transplant recipients. *Am J Med* 1989, **87**, 511–518.
26. Sculier J, Ries F, Verboven N, Coune A, Klastersky J. Role of intensive care unit in a medical oncology department. *Eur J Cancer Clin Oncol* 1988, **24**, 513–517.
27. Knaus W, Draper E, Wagner D, Zimmermann J. An evaluation of outcome from intensive care in major medical centers. *Ann Intern Med* 1986, **104**, 410–418.
28. The Multicenter Post-infarction Research Group. Risk stratification and survival after myocardial infarction. *N Engl J Med* 1983, **309**, 331–339.