



Admission of critically ill patients with cancer to the ICU: many uncertainties remain

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With the beginning of the 21st century, development in the early detection and management of patients with cancer has led to a significant increase in the survival rates of these patients.¹ As a result, an increased number of patients with cancer are requiring admission to the intensive care unit (ICU) either for cancer-related complications or for treatment-associated side effects.

Until recently, admission of patients with cancer to the ICU has been discouraged² because of the risk of unfavourable outcome.^{3–4} According to the current literature, however, the number of patients with cancer who may benefit from ICU support has increased,^{5–9} while improved survival rates have been reported in various subgroups of patients previously supposed to be of adverse outcome, such as patients after haematopoietic stem cell transplantation, patients with acute respiratory failure, acute renal failure, even patients who received urgent chemotherapy while in the ICU.^{10–11} These new data prompt the need for reappraisal of the policies regarding ICU admission in critically ill patients with cancer.

The decision as to whether or not to admit a critically ill patient with cancer to the ICU is quite often challenging. Their medical problems along with their baseline disease underscore a need for an individual approach to this patient population. The decision to apply life-sustaining technology in these patients involves weighing the potential benefit against a futile care. Identification of factors associated with outcomes would help physicians, patients and families in determining the goals of treatment.

Risk factors for adverse outcome have been defined repeatedly. Reasons of admission, type of malignancy, number of organ failures on ICU admission, need for mechanical ventilation, presence of invasive fungal infection and septic shock are, among others, factors that may influence the short-term outcome

of these patients.^{10–14} Even though there are several publications focusing on the decision-making criteria for appropriate ICU utilisation,^{5–7 15–18} the validity of these criteria has not been documented in different patient groups and thus, uncertainty still remains on the precise indications for ICU admission and/or continuation of treatment. It should be emphasised that precision in prognosis is crucially important in ensuring that patients with a reasonable prospect of recovery will not be deprived of ICU admission, but also that patients along with their families will not undergo any unnecessary suffering should there be a low chance of recovery. Emphasis should be given to the fact that the current prognostic models used for all ICU patients have been found to be inaccurate in predicting outcome in patients with cancer,¹⁹ whereas clinical judgement alone fails to predict an accurate prognosis.²⁰ In fact, the absence of reliable predictors of outcome at the time of ICU admission has led some investigators to suggest an ‘ICU trial’ consisted of an unrestricted ICU admission policy with full code management, for a limited period of time, followed by a reappraisal of the level of care afterwards.²¹

In a comprehensive narrative review published in the current issue of *ESMO Open Journal—Cancer Horizons*, Schellongowski *et al*²² highlight evidence-based knowledge on the issues concerning critically ill patients with cancer. In this valuable contribution to the existing literature, independent factors associated with short-term and long-term prognosis of critically ill patients with cancer are extensively presented. Although these outcome predictors could be used as reliable tools to help clinicians in determining which patients should be admitted to the ICU, the authors emphasise that ‘an individual patient’s prognosis is far from perfect’ and that ‘employing these criteria requires thorough evaluations of the applicability in the

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individual patient'. Both statements imply that there is still a high degree of uncertainty in this subject.

Many factors appear to be associated with our persistent inability to determine admission criteria with accuracy: heterogeneity of the populations studied, the lack of information regarding long-term outcomes, the diverseness in patients approach by different specialities (oncologists and intensivists) and the fact that most studies on the topic are based on patient groups that may not be representative of that particular population are, among others, the main ones.

Most of the studies published on the definition of mortality risk factors comprise inhomogeneous populations of patients with regard to type and stage of cancer, cause of ICU need, comorbidities and physical status of patients, time to ICU admission as well as admission and discharge policies.^{5 7 8 14–16 18 23} Different prognostic criteria might be expected to apply to different groups of patients with cancer.

Current clinical research on critically ill patients with cancer is focused on factors predicting short-term (ICU or hospital) mortality,^{5 6 19 23–25} whereas studies on long-term outcomes have been mainly restricted to specific subgroups of patients.^{7 12 26–28} Although in the majority of studies, short-term survival after ICU treatment has been reported to be higher than 50%,^{5 7 8 15 18 23 25} long-term survival, quality of life and quality-adjusted life year expectancy have been reported to be limited.^{7 15 18 29 30} In fact, in an unselected population of patients with cancer, Normilio-Silva *et al.*²⁹ have recently shown that the probabilities for attaining 12 and 18 months of quality-adjusted survival were 30.1% and 19.1%, respectively, while a wide variability of these outcomes was detected among patients.

Factors associated with an acceptable short-term survival may be not relevant for long-term outcome, which seems to be poor, and thus additional doubts regarding the accuracy of our assessment arise.

Uncertainties on the admission policies may also exist because the two main specialities that are usually asked to assess these patients and determine the indications for potential admission to the ICU, that is, oncologists and intensivists, are frequently distinct types of physicians and thus may have quite different perspectives for patients' situation and prospects.³¹

Furthermore, uncertainties may originate from the fact that most studies on predictive factors refer only to patients admitted to the ICU and not in all critically ill patients with cancer for whom an ICU admission was requested. Selection bias may impose limitations to the validity of the results of these studies. In fact, in a prospective 1-year study of all cancer and haematological patients for whom admission to ICU was requested, regardless of whether admission was granted or not, it was found that 20% of patients who were not admitted because they were considered 'too well' died and 25% of the patients who were not admitted because they were considered 'too sick' survived.²⁰ These findings imply

that physicians' judgement can be an unreliable predictor of the outcome, as well as that different admission criteria among centres may provide different results.

Finally, although decisions about life-sustaining therapies should be based first on patients' preferences,³² the majority of critically ill patients are unable to express their own decisions.³³ A possible intensive care treatment has rarely been addressed in previous discussions,³⁴ while the relatives are unable to precisely express patient's preferences.³⁵ Our doubts as to whether our decisions about advanced ICU support are against patients' desires create additional concerns regarding the appropriateness of our choices.

Although it is possible that prediction of mortality in an individual patient will remain an unrealistic goal, we need to minimise uncertainties on appropriate triage decisions in order to improve outcome of these patients without prolonging a painful dying process. To do so, we need large multicentre studies with homogenised inclusion and exclusion criteria as well as studies on long-term survival, disease-free survival and quality of life.

In the mean time, enhancing interdisciplinary communication and collaboration of the ICU team with oncologists and palliative care specialists remains the best way to make a decision in a context of uncertainty.¹⁵

Competing interests None declared.

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