Clinical and scientific letters

Oncology admissions to the intensive care unit: what factors should influence the decision?

The admission of critically unwell patients with cancer to the intensive care unit (ICU) often presents physicians and intensivists with a clinical and ethical dilemma. Studies in the 1990s cited ICU mortality rates of 75–91% for cancer patients who required intubation, and up to 95% in patients who developed more than single-organ failure.[1] There is a need to identify prognostic factors to predict outcomes for cancer patients admitted to ICU, to allow for better patient selection and enhanced outcomes. Even more importantly, we need to recognise when escalation of care is futile.

Our study retrospectively collected data for all oncology patients with solid organ tumours admitted to the ICU as an emergency at the Royal Free Hospital, a tertiary hospital in London, between 2009 and 2015. We identified 31 patients during this time period. Survival rates were determined and analysed in light of different patient and disease-related prognostic factors – including age, organ failure, metastases, sepsis and neutropenia. This study was considered an audit and therefore was exempt from ethical approval.

The mean age of the 31 patients admitted during this period was 66.5 years. There was a strong inverse correlation between number of organs requiring support and 6-month survival. The 6-month survival of patients who required only close observation and no organ support was 86%. Conversely, the survival was only 25% if three organs required supporting. When one or two organs required support, the 6-month mortality was approximately 50% (Table 1).

The presence of neutropenia and sepsis were independently viewed as grave prognostic factors less than 20 years ago. We identified the 6-month survival for both presence and absence of neutropenia +/- sepsis to be similar at 45–50%. The presence of metastases reduced 6-month survival rate, but only marginally (43% in metastatic patients versus 53% in non-metastatic patients). Interestingly, the 6-month survival of patients aged >70 years was 88% compared with 42% in the 40–49 years age bracket, raising the question of whether there is a selection bias for patients on the basis of age.

Overall, 17 of the 31 patients (54.8%) in our study were alive at 6 months, with 3/31 (9.6%) dying in ICU. These data are more favourable than the retrospective study of an equivalent London teaching hospital published in 2010, with an ICU mortality of 22% and a 6-month survival of 27%.[2]

In conclusion, survival of cancer patients in our study, across all tumour types, is significantly better than what it was >5 years ago. The degree of multi-organ failure and the presence of metastases prove to be the strongest prognostic identifiers of outcome post-ICU admission. Preconceived factors,[3] such as presence of neutropenia, sepsis and, particularly, age, do not seem to predict outcome as effectively.

Table 1. 6-month survival and correlation with degree of organ failure

Number of organs supported	6-month survival (%)		
	2009–13 (n=11)	2014 (n=8)	2015 (n=12)
0	67	100	100
1	33	25	50
2	75	0	50
3	0	0	33

In the current climate of rapidly developing systemic cancer therapy, and resource limitation within the NHS, appropriate selection of patients who will benefit from ICU admission is more important than before. Involvement of the multidisciplinary team, including intensivists and palliative care physicians, will enhance decision making regarding the ceiling of care for a patient and ensure they are in line with the patients' wishes and best interests. ■

Conflicts of interest

The authors have no conflicts of interest to declare.

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