Should we admit patients with haematological malignancy to intensive care?

Intensive care physicians are increasingly aware of the need to appropriately manage limited resources, so the admission of patients with haematological malignancy can be controversial because there is a perception of poor prognosis regardless of intervention. While this was true in the 1980s – one study showed an in-hospital mortality of 78% (Lloyd-Thomas et al, 1988), another an intensive care mortality of 90% for those requiring ventilation and renal replacement (Brunet et al, 1990) – survival rates are improving. Kroschinsky et al (2002) studied similar patients and showed an overall intensive care mortality of 44%, although the sub-group of ventilated patients still had a mortality of 74%.

These numbers compare poorly with the all-patient intensive care unit mortalities of 15–25% (in-hospital mortality of 30–35%), but well with another high-risk group, the post-cardiac arrest group, with an intensive care unit mortality of 57.1% (in-hospital mortality of 71.4%). Critical illness following treatment of haematological malignancy is a common and potentially fatal complication, with a yearly incidence of 7% (Gordon et al, 2005). This is likely to increase as newer therapies allow treatment of more advanced and higher risk malignancies and so the dilemma of whether or not to admit these patients will only become more frequent.

The reasons for the improvements in outcome are multifactorial, but better management of the underlying malignancy and earlier recognition of critically ill patients form the cornerstones of modern care. Many intensive care units use outreach teams to help follow up discharged patients and detect critically ill patients. Gordon et al (2005) showed these teams to be effective in reducing mortality, not only because they could spot potential referrals earlier, but also because they could provide critical care on the ward in the form of non-invasive ventilation and vasopressors.

The immunosuppressive effects of the disease process and aggressive treatments put these patients at a high risk of severe infections; sepsis is the leading cause of intensive care unit admission in these patients (Pene et al, 2008). Improved management of severe sepsis has improved the survival of oncology patients with septic shock (Pene et al, 2008). Larché et al (2003) showed improved 30-day survival for early intensive care unit admission and early and adapting antibiotic therapy.

Who benefits from admission?

Is it possible to deduce before admission those who would most benefit from treatment? The requirement for renal replacement therapy is a poor prognostic sign (Pene et al, 2008), especially when combined with the need for mechanical ventilation (Brunet et al, 1990). One cohort study found ventilation alone to be associated with an intensive care unit mortality of 74% compared to 12% mortality in non-ventilated patients (Kroschinsky et al, 2002).

Scoring systems such as the Acute Physiology And Chronic Health Evaluation II (APACHE II) and the Simplified Acute Physiology Score II underestimate mortality in this group, but a higher score still equates to a higher mortality (Gordon et al, 2005). An APACHE II score over 26 was associated with 100% mortality in an early study (Lloyd-Thomas et al, 1988), although more recently that group has had a small proportion of survivors (Gordon et al, 2005). Of course, multiple organ failure and high scores in these scoring systems predict higher mortality in all intensive care unit patients, so it should be no surprise that they apply to this group also. Specific to haematological malignancy, persistent neutropaenia, recurrent disease and treatment involving haematopoietic stem cell transplant are indicators of poor survival, but this is true whether the patient requires critical care or not (Gordon et al, 2005).

Admission to an intensive care unit should be made on a case-by-case basis with factors associated with poor outcomes, such as pre-morbid state, taken into account. However, even experienced clinical practitioners may not reliably predict outcome. Thiéry et al (2005) showed that short-term mortality rates in patients not admitted to the intensive care unit because they were thought to be 'too well' or 'too sick' to benefit were 21.3% and 74% respectively. This suggests that doctors' assessment may not be as accurate as they think, and potentially life-saving treatment might be denied.

Conclusions

In light of current evidence it is easy to think that the haematological malignancy patient needing intensive care unit care is unsalvageable, but the authors believe that the correct strategy is to aim to admit early and continually reassess the patient's condition, much like any patient in need of intensive care support. BJHM

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