

Outcome of patients with hematological malignancy admitted to intensive care unit and their predictors of mortality

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Learning Objectives:

The purpose of this study is to assess the outcome of patients with hematological malignancies admitted to intensive care and to identify factors predicting ICU mortality through a retrospective chart review.

Patients with hematological malignancy admitted to intensive care units have a high mortality rate both due to the underlying disease and the therapeutic regimes. The aim of this study is to identify that group of patients who are unlikely to benefit from advanced or prolonged ICU support so as to decrease the chances of compromise to the potential survivors.

Methods:

This is a retrospective chart review, conducted in the intensive care unit (ICU) of Shaukat Khanum Memorial Cancer Hospital and Research Centre over a period of 5 years, from January 2010 to January 2015. A total of 213 patients were included in this study.

Results:

Patient Characteristics

A total of 213 patients were included in this study. There were 150 (70.4%) males and 63 (29.6%) females with the median age of 36 years (18-88 years). Main diagnosis was Non-Hodgkin Lymphoma in 127 (59.6%) patients followed by Hodgkin's Disease 27 (12.7%) and 16 Acute Myeloid Leukemia (7.5%). Most of the patients 154 (72.3%) were on active chemotherapy at the time of admission to ICU, while 28 patients (13.1%) had newly diagnosed disease and 22 (10.3%) were with either relapsed or had progressive disease. Most common reason for admission to ICU was a combination of respiratory failure with septic shock (29.6%) followed by septic shock alone (19.7%) and acute respiratory failure (13.1%). Other causes included acute renal failure alone (7.5%) or in combination with respiratory or circulatory collapse (10.8%) and central

nervous system involvement (5.6%). Majority of admissions to ICU occurred between day one and five of admission to floor (46.5%, n=99) whereas 49 (23%) patients were taken directly to the ICU. Mainstay of treatment in 38.5% of patients included both invasive ventilation and vasopressor support along with other supportive care like fluids and antibiotics. 23.5% received only supportive management. Duration of stay for 150 (70.4%) patients was between one to several days.

Outcomes:

The results show that 37.5% of patients survived the ICU stay and managed to go home in stable condition. In total 15.4% of patients were alive at 1 year post ICU stay which was quite meaningful.

Predictors of Mortality

Mechanical ventilation and multi organ failure were two main predictors of mortality with a p value of 0.0001. Neutropenia though more common in expired patients did not seem to contribute significantly to mortality.

Conclusion:

Admission to the intensive care unit in a patient with hematological malignancy is associated with poor outcome and high mortality. Identifying the patients who can benefit from aggressive care and prolonged ICU support is important especially when it comes to countries like ours where there are limited resources and financial restraints. Multi organ damage and requirement of invasive ventilation are two main predictors of increased mortality. Neutropenia is also associated with adverse outcome; however, the difference is not as significant as the other two factors mentioned. Our study also showed that 15.4% of patients were alive at 1 year which means that denying ICU admission on basis of diagnosis alone is not justifiable.