Infectious Complications During Neutropenia Subsequent to Auto Peripheral Blood Stem Cell Transplantation in Mongolia

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Background: Hematological malignancies are the most suitable diseases of peripheral blood stem cell transplantation. Patients with different hematological malignancies have different propensities to infectious complications after high-dose chemotherapy (HDC) and autologous hematopoietic stem cell transplantation (HSCT).

Materials and Method: Type, severity, and incidence of infection during the neutropenic period after peripheral blood stem cell transplantation (PBSCT) for treatment of malignant disease were studied in 24 patients treated at a Center of Hematology and bone marrow transplantation in Mongolia.

Results: Data of 9 female and 15 male patients with a median age of 41.8 years suffering from acute leukemia (1), Hodgkin’s lymphoma (4), Non-Hodgkin lymphoma (11), and multiple myeloma (8) were retrospectively analyzed from 2014 to 2020. All patients had received at least 4.83 x106 (1.87-13.75*106 CD34+ cell/kg). CD34-positive cells for stem cell rescue after high-dose chemotherapy. The median time to neutrophil engraftment was 14.2 days. All of the patients experienced at least one febrile episode during their post-transplant course. The incidence of infectious complications was 13 (54.1%) and gram-positive cocci were the predominant pathogens. One patient suffered from lung infiltrates due to Acinetobacter baumannii complex. The resistant pathogens were observed in the patient with infectious complications such as Methicillin-resistant Staphylococcus aureus (MRSA) and Extended-Spectrum β-Lactamases (ESBLs), 4 (30.2%) and 3 (23%) respectively. Central venous catheter-related infections were detected in 5 (38.4%) cases. Also, bloodstream infections occurred in 2 (13.3%) cases. No invasive severe fungal infections and transplant-related deaths occurred in the 24 patients studied.

Conclusion: We conclude that severe, but short-lasting neutropenia after peripheral blood stem cell transplantation is associated with a high incidence of bacterial infection. The severity of the majority of these infections is moderate and the incidence increased of resistant pathogens. With appropriate anti-infective therapies these infections can be managed and life-threatening infectious complications, in particular severe fungal infections, are rare. Empirical anti-infective regimens specifically designed for this clinical situation should be explored.

Keywords: Auto-transplantation, Infections, Complications, Neutropenia, Resistant pathogens