1933 Impact of Bendamustine Pretreatment on Stem Cell Mobilization and Autologous Stem Cell Transplantation in Patients with Multiple Myeloma

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Introduction: Bendamustine is a bifunctional alkylating agent with low toxicity that produces both single- and double-strand breaks in DNA, and shows only partial cross resistance with other alkylating drugs. Treatment of patients with newly diagnosed multiple myeloma using Bendamustine and Prednisone in comparison to Melphalan and Prednisone results in superior complete response rate and prolonged time to treatment failure (Poenisch et al, Res Clin Oncol 132: 205-212;2006). So far, however, reliable information on stem cell toxicity and mobilization of stem cells for autologous stem cell transplantation (SCT) after Bendamustine therapy is missing.

Material and Methods: A retrospective analysis of peripheral blood stem cell mobilization and autologous SCT was performed in 63 patients with multiple myeloma who had received Bendamustine pretreatment at the university Hospitals Leipzig and Heidelberg over a period of sixteen years. Patients had a median age of 59 (range, 31-72) years. The cumulative dosis of Bendamustine per patient ranged between 120 and 2400mg/qm and was administered during a median of three (range 1-10) cycles. The mobilization regimen consisted of Cyclophosphamide 4g/qm (n=41) or 7g/qm (n=4) and G-CSF (2x5ug/kg). Alternative regimens such as CAD, CED, TCED and others were also used in the remaining patients. Apheresis was started as soon as peripheral blood $CD34^+$ counts exceeded $10x10^6$/l with a harvest target of $4x10^6$ $CD34^+$/kg using 4 times the blood volume. The minimal accepted target was $2x10^6$ $CD34^+$/kg.

Results: Stem cell mobilization and harvest was successful in 60 of the 63 patients (95 %). In 19 of 60 patients (32 %) a single apharesis was sufficient to reach the target. The median number of aphareses was two (range 1-7) and the median $CD34^+$ cell-count/kg was 5.9 (range 1.7-20.4) $x10^6$. Information on autologous SCT is available from all 60 patients with successful harvest. Engraftment was successful in 59 of 60 patients. The median time to leucocytes count > l $\times 10^9$/l was reached after 12 days and the time to untransfused platelet count of $>50\times10^9$/l was 14 days. 54 patients (90%) responded after the autologous SCT with 6 CR, 4 nCR, 12 VGPR, and 32 PR. The event free survival at 36 months was 31 % and overall survival was 68 %.

In conclusion, the stem cell mobilization and autologous SCT is feasible in multiple myeloma patients who have received Bendamustine pretreatment.

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