Methods: The CBMTG-R contains data on consecutive patients undergoing autologous and allogeneic HCT in a majority of Canadian HCT centres. Patients who had a first peripheral blood autoHCT between 01/2003 and 01/2014 for either relapsed HL or relapsed DLBCL were identified (1067 patients). Conditioning regimens other than BEAM, Mel200, or Mel/Etop were rarely used, and were excluded (271 patients). Mel200 was used mainly after intensivediCEP reinduction for HL at one centre. Mel200 was uncommonly used for DLBCL (8 patients), and were excluded, resulting in 788 patients (444 with DLBCL and 344 with HL). Kaplan-Meier analysis was used for univariable analysis, and Cox regression models were used for multivariable analysis. Separate models were constructed for DLBCL and HL, with the primary endpoint of overall survival (OS) for DLBCL, and progression free survival (PFS) for HL. Characteristics reviewed were age, transplant centre, gender, performance status, transplant year, disease status at the time of transplant, and chemosensitivity.

Results: Median follow-up from date of transplant for surviving patients was 1.9 years. For DLBCL, there was no significant difference in any characteristics between BEAM (n=299) and Mel/Etop (n=145). In both univariable and multivariable analysis there was no difference in OS or PFS between groups (Figure 1 and Table 1). There was no difference in non-relapse mortality (NRM) at 3 years (4.9% for BEAM, 5.4% in Mel/Etop).

For the patients with HL, there was no difference in any covariates between BEAM (n=160), Mel/Etop (n=130), and Mel200 (n=54). There was also no difference in OS or PFS between groups (Figures 2/3). While disease status at the time of HCT and chemosensitivity were predictive of PFS and OS in HL in univariable models, in multivariable models with conditioning regimen included, they were no longer statistically significant. NRM was low, and comparable in all three groups at 3 years (1.3% in BEAM, 0.8% in Mel/Etop, and 1.9% in Mel200).

Conclusions: In both HL and DLBCL, there was no difference in OS, PFS, or NRM following autoHCT using BEAM or non-BEAM regimens. These regimens appear to be safe and effective alternatives to BEAM.

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Benda-BEAM High-Dose Therapy Prior to Auto-SCT is Effective in Resistant/Relapsed DLBCL

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Background: The major pitfall affecting clinical trials of high-dose therapy (HDT) followed by autologous stem cell transplant (ASCT) in lymphomas is the high heterogeneity of histological entities. As a consequence, the statistical power is reduced when we focus on a specific histological subset, and data are often not conclusive. We previously demonstrated the safety of a new conditioning regimen with bendamustine, etoposide, cytarabine, and melphalan (BeEAM) and ASCT in resistant/relapsed lymphoma patients. The regimen showed long-lasting significant anti-lymphoma activity, with a 3-year PFS of 72%. However, that study enrolled both Hodgkin and non-Hodgkin lymphoma patients.

Aims: We designed a phase II study to evaluate the efficacy of the BeEAM conditioning in resistant/relapsed diffuse large B-cell non-Hodgkin lymphoma (DLBCL) patients.

Patients and Methods: The study was registered at European Union Drug Regulating Authorities Clinical Trials (EudraCT) N. 2011-001246-14. Until now, 61 patients (median age 54 years, range 19-69) with resistant/relapsed DLBCL were enrolled. The primary end-point of the study is to evaluate the 1-year complete remission rate.

Results: Briefly, 46/61 patients had advanced stage disease (III-IV); 20 were primary refractory and 41 had relapsed. 30 patients were in II or subsequent CR after salvage therapy, whereas 27 were in PR and 4 had stable or progressive disease. A median number of $5.72x10^6$CD34+/kg cells (range 2.21-10.60) collected from peripheral blood was reinfused to patients. All patients engrafted, with a median time to ANC$>0.5x10^9$/l of 10 days. Median times to achieve a platelet count $>20x10^9$/l and $>50x10^9$/l were 12 and 17 days respectively. Twenty-two out of 61 patients presented a FUO (36%), whereas 24 patients (39%) presented a clinically documented infection. All patients received G-CSF after transplant for a median time of 8 days (range: 8-13). One patient died due to an incomplete hematological recovery after transplant, producing an overall transplant related mortality of 2.7%. Fifty-seven patients are evaluable for response: 48/57 (84%) obtained a CR, 3/57 (5%) a PR, whereas 6/57 (11%) did not respond to therapy. After a median follow-up of 10.5 months after transplant (range 3-37), 6/57 (11%) patients were refractory, 12/57 (21%) relapsed and 39/57 (68%) are still alive, in continuous CR.

Conclusion: The stringent inclusion criteria at enrollment allow to precisely evaluate the impact of HDT with Bendamustine followed by ASCT in a highly selected population of patients with DLBCL only. Accordingly, our data preliminary provide the evidence that the Benda-BEAM regimen is safe and has promising high efficacy in resistant-relapsed aggressive diffuse large B cell lymphoma.

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