by sex steroid ablation which also increases bone marrow (BM) and peripheral B cell numbers. Immune reconstitution is severely retarded in adult recipients of an allogeneic BMT. These experiments aimed to establish whether sex steroid ablation influenced haemopoietic recovery following allogeneic bone marrow transplantation. One day prior to allogeneic BMT, mice were surgically castrated. 14 days after BMT, bone marrow ($16x10^6 \pm 1.4x10^6$) and thymic ($55.4x10^6 \pm 1.8x10^6$) cell numbers were significantly increased in the castrated mice compared to sham controls ($9.5x10^6 \pm 3.0x10^5$ and $25x10^6 \pm 2.6x10^6$). These remained elevated at day 28 (BM: $22x10^6 \pm 4.0x10^6$ vs. $14x10^6 \pm 2.2x10^6$; thymus: $72x10^6 \pm 5.9x10^6$ vs. $45x10^6 \pm 2.9x10^6$) at which time splenic cellularity was also increased in the castrates. Thymocyte subsets were increased 14 and 28 days after BMT and castration. Thymic dendritic cell numbers were also increased in castrated mice 28 days following BMT suggesting a possible role in graft acceptance. BM precursors and developing B cells were significantly increased 28 days after BMT and castration. These central increases translated to a significant increase in donor-derived peripheral T and B cells 28 days after allogeneic BMT. Every immune-enhancing strategy carries the risk of exacerbating the development of graft-versus-host disease (GVHD). Mice were castrated at the same time as GVHD induction in an allogeneic setting. There was no significant difference in GVHD incidence or severity when comparing castrated and sham-castrated mice. We have previously shown that lymphoid recovery is enhanced in allo-BMT recipients after IL-7 treatment. The combination of IL-7 treatment and castration appeared to have an additive effect in the thymus 28 days after allogeneic BMT. These results indicate that castration and the resulting ablation of sex steroids enhance haemopoietic recovery following allogeneic BMT without increasing GVHD.

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DONOR LYMPHOCYTE INFUSION (DLI) FROM A HLA IDENTICAL SIBLING TO TREAT A COMPLETE DIGEORGE ANOMALY (CDGA)

Cellot, S.[1]; Busque, L.[2]; Duval, M.[1]; Wagner, E.[1]; Lapointe, N.[1]; Dalle, J.[1]; Matioli, J.[2]; Champagne, M.[1] 1. Hôpital Ste-Justine, Montreal, QC, Canada; 2. Hôpital Maisonneuve-Rosemont, Montreal, QC, Canada.

OBJECTIVE cDGA is characterized by a profound T-cell immune deficiency, thymic aplasia, hypoparathyroidism, congenital cardiopathy and facial dysmorphism. Therapeutic attempts for this condition include thymic transplant and related BMT, with variable outcomes. DLI allows selective T-cell reconstitution in these rare patients, eliminating the need for a complete BMT procedure. However, studies on donor/recipient chimerism in the various myeloid and lymphoid fractions in these patients are limited. We have followed the evolution of molecular chimerism in these cell populations, and of the T-cell repertoire diversity, in a cDGA patient treated by DLI ($4x\ 10^6$CD3+ cells/kg), without stem-cell mobilization, conditioning regimen, nor GVH prophylaxis. METHOD Molecular chimerism analysis was done by PCR amplification of repetitive DNA sequences (STR) at 2 loci enabling distinction between donor and recipient. Chimerism was determined at the level of the CD3+, CD4+, CD8+, CD19+ and CD56+ populations, obtained by flow cytometric cell sorting. Peripheral blood polymorphonuclear cells were used for myeloid lineage chimerism analysis. T-cell repertoire diversity and clonality was estimated by studying T-cell receptor gamma chain rearrangements within the CD3+ cell population. RESULTS Immune reconstitution is 100% donor at the T-cell level (CD3+, CD4+ and CD8+) and practically absent in other lineages. A net increase in donor-derived chimerism was observed in granulocytes following acute hepatic and medullary (pancytopenia) GVH, treated with corticosteroids and cyclosporine. T-cell repertoire clonal diversity in relation to clinical events will be presented. CONCLUSION DLI allows rapid donor derived T-cell immune reconstitution, protection against opportunistic infections despite absence of thymus, and a low level of donor granulopoiesis in this patient (up to 12 months of follow-up).

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LYMPHOCYTE RECOVERY AFTER ALLOGENEIC STEM CELL TRANSPLANTATION: COMPARISON OF BONE MARROW AND PERIPHERAL BLOOD STEM CELL TRANSPLANTATION

Kumar, S.; Micallef, I.N.; Porratta, L.F.; Elliot, M.A.; Ansell, S.M.; Dispenzieri, A.; Lacy, M.Q.; Inwards, D.J.; Tefferi, A.; Gastineau, D.A.; Gertz, M.A.; Litzow, M.R. Mayo Clinic, Rochester, MN.

Background: Rate of lymphocyte recovery after allogeneic bone marrow transplantation has been demonstrated to be strong predictor of post transplant relapse in patients with acute myelogenous leukemia and acute lymphoblastic leukemia. Peripheral blood as a source of stem cells is gradually replacing bone marrow for allogeneic transplants as it has already done for autologous stem cell transplantation. It is not clear if the kinetics of the lymphocyte recovery after PBSCT is comparable to that seen with BMT. **Methods and Materials**: We identified 32 adult patients who had undergone allogeneic PBSCT for various hematological malignancies at Mayo Clinic, Rochester between 1984 and 2001. Sixty-four patients who underwent allogeneic BMT who were matched for diagnosis, conditioning regimen, GVHD prophylaxis, HLA match and age for comparison. The absolute lymphocyte count (ALC) measured at day 21 and 30 post transplant were obtained from the medical records. **Results**: We did not find any difference in the rate of lymphocyte recovery following allogeneic stem cell transplant with the use of BM or PBSC as the source of stem cells. The median ALC on day 21 for the PBSCT group was 170 (range 0-800) and for the BMT group was 175 (range 0-1090); P = 0.1. For day 30, the median ALC was 365 (range 20-930) for the PBSCT group and 410 (range 40-1760) for the BMT group respectively, P = 0.1. **Discussion**: Use of peripheral blood stem cells has been associated with a faster hematopoietic engraftment compared to BM as the source of stem cells. In this study we have demonstrated that the lymphocyte recovery remains unchanged irrespective of the source of the stem cells. Therefore, it is likely that the previously published results on the prognostic value of lymphocyte recovery following BMT can be extrapolated to the setting of PBSCT with similar cutoff values.

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EBV-ASSOCIATED LYMPHOPROLIFERATIVE DISORDER DEVELOPING AFTER CONDITIONING WITH RABBIT ATG

Peres, E.M.; Madgie, A.; Abella, E.; Dansey, R. Stem cell Transplant, Karmanos Cancer Institute, Detroit, MI.

Post bone marrow transplant Epstein-Barr virus (EBV) associated Lyphoproliferative disorder (LPD) can be fatal in the immuncompromized host. The major risk factor for the development of EBV-LPD is ex-vivo T-cell depletion, and the in-vivo T-cell depletion steps caused by ATG and monoclonal T cell antibodies. Between March 1999 and January 2001 a total of 539 patients received allogeneic and autologus bone marrow transplants at the karmanos cancer institute. During that same time period 3 patients median age 21 (range 1-35) received rabbit ATG as part of their conditioning regimen and developed EBV-LPD. Occurring at a median of 70 days after bone marrow transplant (range 60-90) median dose of rabbit ATG was 5mg/kg/dose (range 2.5-10). Treatment given in the 3 cases consisted of tapering immunosuppresion and antiviral therapy, donor lymphocyte infusion in one case and chemotherapy in one case. We observed a close association with the use of rabbit ATG and the development of EBV-LPD. We believe that close monitoring and periodic testing for EBV when using this agent should be considered when ATG is used as a part of the transplant conditioning regimen.