autologous patients that failed prior collection attempts with filgrastim (G-CSF) alone. Many centers use plerixafor for prior failed mobilization on the evening of day 4 of G-CSF. Less consensus regarding the utilization and timing of plerixafor with current ineffective mobilization exists. We developed a strategy utilizing double-dose G-CSF on day 4 if the CD34 count was less than 10 cells/μL in an attempt to increase the CD34 count to sufficient levels to initiate HPC-A, thus obviating the need for plerixafor.

Methods: All patients undergoing HPC-A collections from April 2009 to May 2010 were reviewed. The predefined protocol was as follows:

All patients started G-CSF 10mcg/kg SQ on day 1.
CD34 cell counts were drawn day 4 of G-CSF.

- If the CD34 cell count ≥ 10, proceed with HPC-A.
- If < 10, an additional evening dose of G-CSF 10mcg/kg was added.

CD34 cell counts repeated day 5.

- If ≥ 10, proceed with HPC-A and continue twice daily G-CSF until the desired CD34 count.
- If the count 1 to 9, G-CSF revert back to once daily and plerixafor was added the evening of day 5 with HPC-A the next morning.
- If < 1, the mobilization attempt was deemed a failure.

Minimum collection goal was 3×10^6/kg CD34.

Results: 86 patients underwent stem collection, of which 69 followed our G-CSF-alone protocol. All 69 were successfully mobilized, 41 (59%) with G-CSF 10mcg/kg SQ daily alone. Of the remaining 28, 18 (64%) mobilized with twice daily G-CSF and 10 (36%) required plerixafor.

Table 1.

	N	Mean CD34/kg	Mean HPC-A Days	Mean Cost per Mobilzation*
Daily G-CSF alone	41	8.15	1.98	$14,757
BID G-CSF	18	6.35	3.17	$23,724
Plerixafor + G-CSF	10	6.45	2.80	$35,863

*HPC-A cost of $6000/day and hospital acquisition cost utilized for G-CSF and plerixafor.Cost savings utilizing our strategy versus plerixafor on day 4 was $219,000 including drug and HPC-A procedure costs. This translates to a cost savings of approximately $8,000 per patient.

Conclusion: Doubling the G-CSF frequency to twice daily on day 4 when the CD34 count was 1- 10 was effective in mobilizing 64% of patients who failed G-CSF-alone mobilization in a similar number of HPC-A days (3.17 vs 2.80) when compared to plerixafor. This strategy results in a significant cost avoidance of approximately $8,000 per patient. Consideration should be given to double-dose G-CSF on day 4 of current ineffective mobilization in lieu of plerixafor.

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PRELIMINARY EXPERIENCE WITH PLERIXAFOR FOR PERIPHERAL BLOOD STEM CELL MOBILIZATION IN PEDIATRIC PATIENTS

Hawks, R.G.[1], Semidei-Pomales, M.[2], Abendroth, H.E.[1], Garvin, J.H.[1], Cairo, M.S.[1,2,3] [1]Pediatrics; [2]Medicine; [3]Columbia University, New York, NY; [4]New York Presbyterian Hospital, New York, NY

Autologous peripheral blood stem cell (PBSC) transplant is an accepted therapy for pediatric patients with lymphoma, neuroblastoma, and CNS tumors. PBSC mobilization with filgrastim alone or filgrastim following chemotherapy may be unsuccessful in heavily pretreated patients, based on a desired minimum cell count of 2x 10E6 CD34+/kg to proceed with Autologous PBSC transplant. Plerixafor is approved for use in combination with filgrastim for PBSC mobilization, and in adults with lymphoma or myeloma, plerixafor/filgrastim mobilization results in 2- to 3-fold increased likelihood of successful harvest compared to filgrastim alone. We report our experience with plerixafor, utilizing a dose of 240 micrograms/kg SQ 10 -11 hours before pheresis, repeated daily up to 4 days, in 7 pediatric patients (3 refractory Burkitt lymphoma (BL), 1 high risk neuroblastoma (NB), 2 medulloblastoma (MB), 1 recurrent CNS PNET), ages 10 to 20 years, with inadequate or borderline PBSC yields following multiagent chemotherapy and filgrastim. Incremental PBSC yields following filgrastim and plerixafor were 0 to 9.0 × 10E6 CD34+ cells/kg. The Peripheral Blood CD34+ counts varied widely from > 1.0 to 56 cells/uL. 2 of 3 BL patients and the NB patient mobilized successfully and underwent autotransplant. 1 BL patient failed to mobilize and underwent allogeneic transplant. Of 3 CNS tumor patients (all with prior craniospinal irradiation), 1 with MB and 1 with PNET had successful mobilization but died of disease progression prior to autotransplant; the other patient with MB continues on reinduction chemotherapy. No serious adverse events were seen. We conclude that plerixafor is safe and effective in selected pediatric patients even following craniospinal irradiation, but may be less effective in refractory patients with extensive prior chemotherapy. The latter group could potentially benefit from earlier introduction of plerixafor at the first attempted PBSC mobilization.

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DEFIBROTIDE PREVENTS THE ACTIVATION OF MACROVASCULAR AND MICROVASCULAR ENDOTHELIA CAUSED BY THE SOLUBLE FACTORS RELEASED TO BLOOD BY AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION

Diaz-Ricart, M.[1], Palomo, M.[1], Rovira, M.[2], Escolar, G.[1], Carreras, E.[2] [1]Hospital Clínic, Barcelona, Spain; [2]Hospital Clínic, Barcelona, Spain

Endothelial activation and damage occur in association with autologous hematopoietic stem cell transplantation (HSCT). Several of the early complications associated with HSCT seem to have a microvascular location. Through the present study, we have characterized the activation and damage of endothelial cells of both macro (HUVEC) and microvascular (HMEC) origin, occurring early after autologous HSCT, and the potential protective effect of defibrotide (DF). Sera samples from patients were collected before conditioning (Pre), at the time of transplantation (day 0), and at days 7, 14 and 21 after autologous HSCT. Changes in the expression of endothelial cell receptors at the surface, presence and reactivity of extracellular adhesive proteins, and the signaling pathways involved were analyzed. The expression of ICAM-1 at the cell surface increased progressively in both HUVEC and HMEC. However, a more prothrombotic profile was denoted for HMEC, in particular at the time of transplantation (day 0), reflecting the deleterious effect of the conditioning treatment on the endothelium, especially at a microvascular location. Interestingly, this observation correlated with a higher increase in the expression of both tissue factor and von Willebrand factor on the extracellular matrix, together with activation of intracellular p38 MAPK and Akt. Previous exposure and continuous incubation of cells with DF prevented the signs of activation and damage induced by the autologous sera. These observations corroborate that conditioning treatment in autologous HSCT induces a proinflammatory and a prothrombotic phenotype, specially at a microvascular location, and indicate that DF has protective antiinflammatory and antithrombotic effects in this setting.

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EFFICACY AND COST-BENEFIT ANALYSIS OF PLERIXAFOR PLUS FILGRASTIM BASED ON A RISK ADAPTIVE APPROACH FOR AUTOLOGOUS PERIPHERAL BLOOD HEMATOPOIETIC PROGENITOR CELL COLLECTION

Vishnu, P.[1], Roy, V.[1], Paulsen, A.[2], Zubair, A.C.[2] [1]Mayo Clinic, Jacksonville, FL; [2]Mayo Clinic, Jacksonville, FL

Plerixafor (P) in combination with filgrastim (F) is currently approved for mobilization of hematopoietic progenitor cells (HPC) in patients with multiple myeloma (MM) or non-hodgkin's lymphoma (NHL). F + P is a very expensive but reduces the incidence of mobilization failure. In an effort to utilize P in a cost efficient manner, we employed a risk adaptive strategy of using P only in patients who are at high risk of mobilization failure defined by peripheral blood $CD34^+$