Limitations to the study include a small sample size and an arbitrarily determined threshold to administer P. A cost-based analysis is currently being performed to help determine the best day 4 CD34 cutoff for future studies.

478

POTENTIAL COST BENEFIT OF PEGFILGRASTIM COMPARED TO DAILY FILGRASTIM FOLLOWING HEMATOPOIETIC CELL TRANSPLANTATION AT A LARGE TEACHING HOSPITAL

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The ability of filgrastim (G-CSF) to potentiate hematopoietic recovery following autologous hematopoietic cell transplantation (HCT) is well-documented and is currently the standard of care.[1] Its use following allogeneic HCT is less well-delineated, but is often practiced clinically. Pegfilgrastim, given once every 14 days, is a convenient and potentially economic alternative to daily G-CSF administration. We retrospectively evaluated the utilization of G-CSF following HCT and its associated cost acquisition among 605 total patients transplanted at a large teaching hospital. Between 1/1/2007 and 8/17/2011, 165 patients received an allogeneic HCT and an average of 17 doses of G-CSF (range 2-131) following transplant. Of these patients, 26 received umbilical cord blood, 113 received bone marrow, and 26 patients received peripherally mobilized cells. During the same time period, 440 peripherally mobilized autologous HCT patients received an average of six daily G-CSF doses (range 1-33). The average wholesale price (AWP) of G-CSF 480 mcg and pegfilgrastim 6 mg is $477.18 and $4218.00, respectively. Therefore, pegfilgrastim offers institutional cost savings if greater than 8 doses of G-CSF are administered. At our institution during the year 2010, 41 allogeneic HCT and 99 autologous in-patient HCT were performed. Substitution of G-CSF with one dose of pegfilgrastim, followed by daily G-CSF dosing as clinically appropriate, would have decreased our yearly cost expenditures for allogeneic HCT by approximately $101,000. However, yearly cost expenditures for autologous HCT would have increased by $179,000. Given that the use of pegfilgrastim appears to be both safe and efficacious when compared to daily G-CSF following HCT,[2-5] it is reasonable to consider use of this agent, particularly among allogeneic HCT recipients due to the economic benefit and convenience in administration.

479

PBSC MOBILIZATION FOR AUTOLOGOUS TRANSPLANTATION IN MULTIPLE MYELOMA AFTER INTENSIVE CHEMOTHERAPY IN PATIENTS WITH SEVERE RENAL DYSFUNCTION RECEIVING HEMODIALYSIS RESCUE POST CYCLOPHOSPHAMIDE

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Peripheral blood stem cell (PBSC) mobilization with high dose (HD) cyclophosphamide (CY) 4gm/m2 and rh-GCSF (10 μg/kg/d) is routinely used to produce sufficient numbers of stem cells into the peripheral blood for collection with the added benefit of reducing tumor load. Guidelines for dosing CY in patients with severe renal dysfunction recommend a dose reduction but could affect mobilization, disease progression and length of survival. We describe the outcome of rescue hemodialysis post HD CY on PBSC collections and CY-related toxicities. Three patients with multiple myeloma and severe renal insufficiency were given HD CY then underwent 6- hour high flux hemodialysis beginning 14 hours after the end of the CY infusion. The hemodialysis was timed to remove any accumulation of CY and its metabolites to prevent unnecessary toxicity but also to allow sufficient efficacy and mobilization of stem cells to occur. The control group (n = 10) had normal renal function (GFR <70ml/min) and was matched to disease, gender and age. The mean time to complete stem cell collections (target dose 5 x10∧6 CD34 cells/kg) was 24 days (20-26) compared to a control group of 14 days (10-29). After mobilization the median cell yield was 3.9 x 10∧6 CD34 compared to 8.37 x 10∧6 CD34 in the control group. No severe CY toxicities were observed. We conclude that single HD CY priming in patients with severe renal dysfunction rescued by hemodialysis effectively produces PBSC but the time to collections may be delayed and the yield reduced.

480

LEVETIRACETAM IS EFFICACIOUS FOR PREVENTION OF BUSULFAN INDUCED SEIZURES

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High-dose busulfan is used in several conditioning regimens in patients undergoing allogeneic hematopoietic cell transplant (HCT). Busulfan is known to reduce the seizure threshold, and historically, has contributed to partial or generalized seizures in up to 10% of patients without a known history of seizures. Phenytoin has been the primary agent used in preventing busulfan-induced seizures in many transplant programs. However, due to concerns of drug interactions, side effects, and dosing issues, phenytoin is not an ideal agent in the HCT setting. For these reasons, the primary prophylaxis at the University of Michigan was changed in April 2009 from phenytoin to levetiracetam 1000 mg twice daily beginning 12 hours prior to Busulfan through 48 hours after the last busulfan dose for adults and 10mg/kg/dose twice daily (max 1000 mg) for children. This retrospective review compared levetiracetam (N = 125) to phenytoin (N = 220) for busulfan seizure prophylaxis at this single-institution (January 2007- February 2011). Standard dosing for phenytoin in adult patients was 1000 mg total dose in 3 divided doses beginning the day prior to the initiation of Busulfan, followed by 2.5 mg/kg/dose PO twice daily, and continuing for 24 hours after the last dose of Busulfan; and in children, 5- 7.5 mg/kg/dose given in 3 doses the evening prior to the initiation of Busulfan, followed by a maintenance dose of 2.5 mg/kg/dose twice daily to be given 24 hours after the last dose of Busulfan. A free phenytoin level was obtained prior to the initiation of Busulfan with subsequent daily levels until a therapeutic goal level of 1-2 was achieved. Busulfan-based conditioning regimens included: BuCy2, BuCy4, CloBu4, FluBu2, and FluBu4, respectively. There were two seizures in patients who received phenytoin compared to none in those who received levetiracetam. Based on these findings combined with a significant decrease in drug interactions, levetiracetam is the primary agent for busulfan seizure prophylaxis.

481

IMPROVING VACCINATION OF PATIENTS PRE AND POST BONE MARROW TRANSPLANT

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The Ohio State University James Cancer Hospital and Solove Research Institute Blood and Marrow Transplant (BMT) Program developed a vaccination program (VP) for BMT patients. Several obstacles were identified that prevented a VP. These included cost, absence of standard plan of care (POC), and staff awareness of vaccination schedule. An initial POC was developed in 2008 based on historical data. Twenty-four months after implementation, a quality assessment (QA) revealed that only 7.6% of allogeneic BMT patients had appropriate vaccinations documented at 12 months status post transplant. A best practice order set was introduced to the outpatient clinicians who regularly evaluate these patients. Six months after the best practice order set was introduced, a random sample of 10 patient charts revealed 100% compliance of the VP.

The QA captured a snapshot of VP compliance of annual influenza vaccination and vaccination for allogeneic BMT patients, beginning 12 months status post allogeneic transplant (Tdap, Hib, Hep B, Pneumococcal, and IPV). For allogeneic BMT patients, only 10% of the patients were not on immunosuppressive therapy (GvHD grade 0-2). The QA revealed that allogeneic BMT patients received annual influenza vaccination; however due to being on immunosuppressive therapy (IT) and based on current VP POC, did not receive recommended vaccination at 12 months.

After a literature review, the revised VP POC was divided into pre- and post BMT, with distinctions for autologous and allogeneic. Guidelines were developed for BMT patients with thrombocytopenia, a potential lapse in the vaccination schedule, patient's family members, related BMT donors, and BMT Program staff who may have received live-attenuated vaccination (varicella) during employee health evaluation.

Despite an existing plan of care, there were numerous quality improvement opportunities. Evidence based practice should continuously be reviewed and implemented into practice with annual review of policies, procedure and/or plans of care.