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RETROSPECTIVE REVIEW OF THE USE OF PALIFERMIN TO PREVENT MUCOSITIS IN HEMATOPOIETIC STEM CELL TRANSPLANTATION PATIENTS CONDITIONED WITH HIGH-DOSE CHEMOTHERAPY AND TOTAL BODY IRRADIATION

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Rationale: Mucositis is caused by chemotherapy and radiation and is characterized by pain, erythema, and ulceration of the oral mucosa. Palifermin is a keratinocyte growth factor approved for the prevention of mucositis. The primary objective of this study was to compare the proportion, duration, and severity of mucositis in bone marrow transplant patients pre- and post-palifermin treatment.

Methods: Data were collected retrospectively by a chart review on patients who received high-dose chemotherapy and total body irradiation from January 2004 to February 2009 at The Ottawa Hospital. Results were analyzed before and after the introduction of palifermin in August 2006. The severity of mucositis was assessed using the Bearman scale.

Results: Data were collected from 75 patient charts; 34 of which received palifermin. The proportion of patients experiencing mucositis was 97.6% for those who did not receive palifermin and 79.4% for those who received palifermin ($p = 0.02$). Bearman scale grade ≥ 2 mucositis was experienced by 92.7% of patients without palifermin compared to 47.1% with palifermin ($p < 0.001$). Palifermin reduced the median duration of mucositis by 4.0 days ($p = 0.009$).

Conclusion: Palifermin reduced the proportion, severity, and duration of mucositis in this patient population.

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ELECTRONIC AUTOMATION OF TRANSPLANT CONDITIONING PROTOCOLS IN A PEDIATRIC BLOOD AND MARROW TRANSPLANT SERVICE

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Currently there is no commercially available electronic automated system for the prescribing of conditioning regimens for hematopoietic progenitor cell transplants (HPC). To address this, with the aim of improving patient safety and reducing prescriber errors, the BMT Network NSW and the transplant program at Sydney Children's Hospital collaborated to develop electronic templates for 15 conditioning regimens.

The Transplant Pharmacist and BMT Network Quality Manager utilized Excel software to generate templates based on current approved protocols which contain dropdown lists and locked formulas. Drug doses are automatically calculated and incorporate dose rounding according to the patient's height, weight and/or age. Donor and recipient transplant characteristics, including HPC cell source and processing, and infectious disease screening, automatically determine the majority of prophylactic and supportive care. Each template was independently validated by the Transplant Director to ensure that all formula function correctly. Templates were then authorised, document controlled and given a unique document identifier and version number. Each template is password protected, locked and cannot be changed without authorisation from the Transplant Director.

When required for use, the appropriate conditioning regimen template is selected and patient and donor parameters entered. Non-automated supportive care (for example blood-product support and choice of antifungal prophylaxis) can be selected from drop down boxes. Once complete, the protocol is converted to Acrobat pdf format, checked and signed by the Transplant Director and Pharmacist then distributed. The signatures are password protected and e-stamped with the time and date. No protocol once converted to Acrobat can be changed.

Previously the preparation of a conditioning protocol was a lengthy process with manual data collection and entry into a Word document with multiple opportunities for prescriber error. The development of electronic automated templates has improved efficiency, reduced pharmacy and physician time dedicated to this task, and in addition has reduced prescriber error and improved patient safety. This system could be easily modified to incorporate site-specific rules at other transplant centres.

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PLERIXA FOR DOSING AND ADMINISTRATION IN A PATIENT WITH DIALYSIS DEPENDENT RENAL FAILURE

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Background: Plerixafor, a CXCR4 antagonist, is approved for stem cell mobilization for patients undergoing autologous stem cell transplantation, and is useful in the mobilization of patients who have failed mobilization previously. The approved dosing recommends a dose adjustment for mild to moderate renal impairment, but no specific details on dosing in dialysis patients.

Objective: To describe the first reported U.S. experience with use of plerixafor in dialysis dependent renal failure.

Methods: A 38 year old patient with ISS stage 3 multiple myeloma was evaluated in our outpatient stem cell transplantation clinic. The patient had developed renal failure secondary to his myeloma with a baseline glomerular filtration rate of less than 20 ml/min. Standard filgrastim-based mobilization was unsuccessful with the patient's maximum pre-pheresis CD34+ = 5.6 cells/μL. Based on limited data from Europe, and evaluation of the pharmacokinetic properties of plerixafor, the patient was treated with G-CSF (10ug/kg/day) for 4 days and a post-dialysis dose of plerixafor at a dose of 160 mcg/kg on the evening of day 4, followed by stem cell collection 12 hours later on Day 5. Dialysis was held during the attempted mobilization, to avoid removal of plerixafor by ultrafiltration.

Results: Adequate stem cell yield was obtained with a single dose of plerixafor in this patient. The morning after initial plerixafor dosing, the patient's pre-pheresis CD34+ = 125.62 cells/μL. The patient underwent successful stem cell collection with a yield of 5.33×10^6 CD34+ cells/kg after his first apheresis session.

Discussion: Based upon our experience with plerixafor in a dialysis-dependent patient, we are instituting a policy to dose plerixafor at typical renal adjustment doses, with dialysis sessions being scheduled prior to plerixafor administration, and repeated, as clinically necessary, after apheresis and prior to the subsequent plerixafor dose. If clinically feasible, we would recommend avoiding dialysis during the days required to collect stem cells, although in our single patient experience, this was not necessary.

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CONTINUOUS INFUSION (CI) CYCLOSPORINE (CSA): ASSESSMENT OF DOSING IN PEDIATRIC AND ADOLESCENT PATIENTS (PTS) WITH WEIGHT > 50 KG DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)

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Continuous Infusion CsA (5 mg/kg/day) is used for GVHD prophylaxis at Children's Memorial Hospital (CMH) following full intensity conditioning allogeneic HSCT. Toxicities from CsA are common and require careful monitoring. A drug utilization evaluation was conducted assessing CI CsA to determine the following parameters: dose adjustments, drug levels, and toxicities. This retrospective analysis for the drug evaluation report was generated from the electronic medication entry system (EPIC®). Medication codes for intravenous CsA were used to obtain data on those pts who received CI CsA. Patient weight, initial CI CsA dose, time CsA was initiated, measured levels of CsA, and time and amount of dosage changes were analyzed. From June 2007 through