

future analyses, such as determination of value of services, which in turn could support the justification of HSCT pharmacy services.

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Withdrawn

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Intravenous Pentamidine for *Pneumocystis Carinii*/Jiroveci Pneumonia (PCP) Prophylaxis

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Background: Sulfamethoxazole/trimethoprim (SMX/TMP) is the current gold standard for PCP prophylaxis in hematopoietic stem cell transplant (HSCT) patients. There are several second line options for prophylaxis but many, including intravenous (IV) pentamidine, have not been proven to be as effective or as safe as SMX/TMP in the pediatric HSCT population. There is increasing use of IV pentamidine in the pediatric HSCT population, as it is easily given once monthly, with no issues regarding compliance or vomiting. However, there are limited published data to support safety and efficacy of this approach. This study was aimed to determine the safety and efficacy of IV pentamidine in preventing PCP infection in our pediatric HSCT patients.

Methods: A retrospective chart review was conducted with IRB approval to evaluate all HSCT patients at Cincinnati Children's Hospital Medical Center (CCHMC) that received at least one dose of IV pentamidine from January 2010 to July 2013. The primary outcome, pentamidine efficacy, was evaluated through lack of breakthrough PCP infection. The secondary outcome, pentamidine safety, was evaluated by adverse events leading to pentamidine discontinuation.

Results: Total of 285 HSCT patients received at least one dose of IV pentamidine and were included in the final analyses. Median age of patients was 5 years (range: 0.2 to 32 years). Patients were on pentamidine prophylaxis for a median of 5 months (range 1–44 months). Only 1 patient developed breakthrough PCP infection while receiving IV pentamidine prophylaxis (0.35%). Two patients were diagnosed with toxoplasmosis while receiving pentamidine prophylaxis (0.7%). Twenty patients (7%) experienced an adverse event leading to discontinuation of pentamidine, with tachycardia being the most common adverse event leading to discontinuation of pentamidine. The rate of adverse effects seen with pentamidine is comparable to that seen in patients receiving SMX/TMP prophylaxis which is associated with adverse effects ranging from 3.1–59%.

Conclusion: In a three year time span only 1 patient (0.35%) receiving IV pentamidine prophylaxis had a breakthrough PCP infection. Although SMX/TMP is considered first line for PCP prophylaxis, based on the results of this study, IV pentamidine should be considered a safe and effective alternative in pediatric HSCT patients. Of note, pentamidine does not provide toxoplasmosis suppression, a consideration for children considered at high risk of reactivation.

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Hepatitis B Immune Globulin Prophylaxis of Viral Reactivation during Stem Cell Transplant

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Background: Stem cell transplant patients who are hepatitis B negative at the time of transplant and receive stem cells from a hepatitis positive donor have a higher risk of liver related post-transplant complications and hepatitis viral positivity. The use of lamivudine has been documented in the literature as chemoprophylaxis for preventing viral reactivation in positive patients and also surface antigen negative patients receiving stem cell product from hepatitis positive donors. The expected duration of chemoprophylaxis with lamivudine therapy is multiple months following stem cell transplant. This is a case series of using a two dose course of hepatitis B immune globulin, without lamivudine, for the prevention of viral seroconversion in stem cell transplant recipients.

Methods: This is a single center retrospective chart review of three pediatric stem cell transplant patients who were prescribed hepatitis B immune globulin for prophylaxis of seroconversion of hepatitis B. Hepatitis B immune globulin 0.06mL per kilogram was administered as two doses, on day -1 or day 0, and repeated four weeks later. All patients received allogeneic transplantation from matched related donors, found to be positive for hepatitis B prior to stem cell harvest. Diagnoses for stem cell transplant of the patients were acute lymphoblastic leukemia, congenital myelofibrosis and cartilage hair hypoplasia. Patient age ranged from 1 to 17 years.

Results: At median of 20 months follow up (range 12–32 months), no patients were reported to have a positive hepatitis B DNA after stem cell transplant. No cases of veno-occlusive disease of the liver were observed. This small case series may present an alternative, simpler prophylaxis regimen that is effective at preventing hepatitis viral transmission during stem cell transplant.

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Adverse Events during Peripheral Blood Hematopoietic Stem Cell Mobilization in Light Chain Amyloidosis Patients

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Background: High-dose chemotherapy with autologous hematopoietic stem cell transplantation (auto-HCT) can be an effective treatment for systemic light chain amyloidosis (AL). However, significant morbidity may occur in AL patients undergoing peripheral blood stem cell (PBSC) mobilization, especially if they have cardiac or renal involvement. Reported complications include fluid overload, cardiac arrhythmias, bleeding events, and infections.

Methods: We identified 101 patients with AL who underwent PBSC mobilization and collection with filgrastim at a dose of 10 mcg/kg/day between 2006 and 2013. Fifteen patients (15%) also received plerixafor at a dose of 0.16–0.24 mg/kg/day after at least 4 days of filgrastim. The primary

objective was to evaluate the incidence of adverse events (AE) during PBSC mobilization and collection. AE included weight gain greater than 2%, cardiac arrhythmias/events, hemorrhagic or thromboembolic events, failure to complete PBSC collection, and death.

Results: The median age of patients was 60 years and median serum creatinine was 1.09 mg/dL. Fifteen patients (15%) had cardiac involvement, 45 patients (45%) had renal involvement, and 21 patients (21%) had both cardiac and renal amyloid involvement. Ninety-two patients (91%) successfully collected a minimum of $\geq 2 \times 10^6$ CD34 cells/kg and proceeded to auto-HCT. Nine patients (9%) failed to complete initial PBSC mobilization attempt due to significant toxicity and 7 patients (7%) were never able to proceed to auto-HCT. Four patients (4%) died during the peri-mobilization period, with 3 deaths attributed to sepsis/multi-organ failure. Sixty-one patients (60%) developed weight gain $>2\%$ of baseline weight. Seven patients (7%) experienced a cardiac event (5 atrial fibrillation/tachyarrhythmias, 1 myocardial infarction, and 1 hypertensive urgency). Five patients (5%) had a thromboembolic event (4 deep venous thromboses and 1 pulmonary embolism). Three patients (3%) developed a significant bleeding event (1 central nervous system and 2 gastrointestinal). Because of high risk for complications during PBSC mobilization, 17 patients (17%) underwent PBSC mobilization as an inpatient. Furthermore, 14 patients (14%) began the mobilization process as an outpatient but were subsequently admitted for complications.

Conclusion: PBSC mobilization and collection in AL patients can be associated with significant morbidity, with almost 10% of patients unable to complete collection, and peri-mobilization mortality of almost 4%. Selected patients may benefit from hospitalization during PBSC mobilization and collection.

TRANSPLANT NURSING ADMINISTRATION

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Shared Leadership: Clinical Nurse Leaders Improving Continuity of Care and Quality Outcomes for Hospitalized Stem Cell Transplant Patients

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Topic Significance & Study Purpose/Background/Rationale:

As increasingly more complex hematopoietic stem cell transplants (HSCT) are performed there is a need to improve continuity of care and quality outcomes for inpatients. A shared leadership approach was used to on-board four Clinical Nurse Leaders (CNLs) to a 48-bed HSCT unit in a novel patient care delivery system as part of an institutional roll out. Each CNL functioned as the primary lead over staff and patients assigned to 12-bed pods in a patient-centered care delivery approach called Primary Team Nursing (PTN). The purpose is to discuss nurse sensitive quality and patient satisfaction outcomes following the implementation of PTN using CNLS on a large inpatient stem cell transplant unit.

Methods, Intervention, & Analysis: Four CNLs trained with bedside nurses learning the care of HSCT patients on a 48-

bed unit over a 3-month period, and were then moved into the CNL role overseeing teams of nurses and assistants working on 12-bed pods with the implementation of PTN. Quality and patient satisfaction data were trended prior to and following the implementation of PTN. Additionally team based outcomes were evaluated using TeamSTEPPS assessment tools.

Findings & Interpretation: Metrics indicate significant improvements in most nurse sensitive quality indicators including patient satisfaction, fall reduction, hourly rounding, and CLABSI. Additionally TeamSTEPPS assessments performed at intervals throughout the first year of implementation show improvement across the domains of team structure, leadership, mutual support and communication.

Discussion & Implications: Using CNLs as the team leader in the Primary Team Nursing Model may contribute to enhancing quality and continuity of care for complex HSCT patients.

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Innovative Patient and Family Education

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Topic Significance & Study Purpose/Background/Rationale:

The shift of responsibilities to the outpatient arena for patients and caregivers has challenged educators to expand information accessibility from onsite education to easily accessible internet resources. Effective education keeps patients safe by providing caregivers specific information when needed. Caregivers expect to get the trustworthy information from doctors and nurses as well as online. Most caregivers have mobile devices (Pew 2013) and increasingly rely upon the internet for information (Longacre, 2013).

Methods, Intervention, & Analysis: Ongoing pre/post Program Evaluation surveys are available. We developed a multiplatform strategy utilizing social media (Facebook), online video library, live streaming classes, online patient manuals, and a RN monitored phone line in addition to traditional formats such as a foundation class focusing on post-transplant in the home. This approach provides access to specific personalized information anywhere. These approaches allow accessibility unimaginable a few years ago.

Online distribution of patient manuals ensures current information at home. Video links are contained in online manuals. The core transplant videos include clinic orientation, managing care at home, CVC care, donor information, long-term follow up, food safety, and relaxation. There are over 70 videos in the online library. Patients and families use the videos in anticipation of treatment as well as for review of material.

Findings & Interpretation: The presentation will include data from three sources: Facebook analytics (3000 monthly interactions), ongoing surveys from program evaluations and from a research protocol. Survey comments like “have PDFs of caregiver manuals online” and “have videos online” guided development. Results indicate preference for personalized RN/MD instruction, classes, and manuals ($>4.5/5$) over generic pamphlets (3.7/5). Many patients have rotating caregivers or out of town family members who rely upon online materials.