	Median Pre CD34 /uL	Median CD34/ kg Initial Collection	Median CD34/ kg Second Collection	Median % of Initial Collection	Days to ANC >0.5 x10^9/L	Days to Plt >50 x10^9/L
NHL (n=7)	2.1 (1.5-6.2)	1.5 (1.27-1.68)	0.68 (0.27-1.96)	41% (21-114)	11 (10-12)	16 (11->28)
MM (n=3)	3.1 (3.1-5.7)	3.01 (1.85-3.77)	1.51 (1.11-3.01)	60% (40-85)	11 (9-12)	14 (13-14)

blood CD34 count. These algorithms are essential given the high cost of P and the inability to determine which patients will collect poorly using clinical parameters alone.
Previous studies have shown that the high cost of P is justified based on fewer apheresis days required. However when patients require 2 or more days of P the costs can become prohibitive.
To alleviate the need for additional days of P we piloted an approach where patients who were close to achieving their target collection goal after the first day of P continued their G CSF, but without an additional dose of P. Minimum accepted collection goals were 2 x 10^6 CD34/kg for NHL patients and 4 x 10^6CD34/kg for MM patients.
From April 2012 through April 2014 170 patients underwent an autologous transplant. Fifty (29.4%) ultimately required P to mobilize adequate numbers of cells. Ten patients (7 NHL, 3 MM) were judged close to their preset target collection goal after their first dose of P. These patients were collected the following day without an additional dose of P.

As shown in Table 1 the median peripheral blood CD34/uL count prior to collection was 2.1 for NHL and 3.1 for MM. The median CD34 x 10^6/kg collected the day following the dose of P was 1.5 (NHL) and 3.01 (MM). On the second day of collection without P, the median CD34 x 10^6collected was 0.68 (NHL) and 1.51 (MM). All patients achieved their target goals and were able to successfully proceed to transplantation. The median percentage of the original collection is 40 and 60% respectively for NHL and MM. All patients engrafted with similar times to patients not requiring P, or who had a successful collection with a single apheresis.
It appears that in patients who are close to achieving their target dose, that the strategy of omitting the second dose of P can successfully allow collection of sufficient cells to permit autologous transplant with appropriate engraftment times. In our population 20% of the patients who received P fell into this category. With a cost of approximately $7000 per patient dose, the cost savings per 100 patients transplanted would be approximately $42,000. Such an approach clearly can minimize the costs associated with stem cell mobilization and collection without any difference in the clinical outcome.

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Safety and Efficacy of Low Dose Liposomal Amphotericin B for Prophylaxis of Invasive Fungal Infection in Hematopoietic Stem Cell Transplantation- a Single Center Experience

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Ambisome (amphotericin B liposomal complex, L-Amb) is highly effective for the treatment of invasive fungal infections (IFI) and may be an important prophylactic drug in patients undergoing hematopoietic stem cell transplant (HSCT). Several new anti-fungal drugs have become available over the past few years leading to various prospective studies aiming to assess the role of prophylaxis and treatment in IFI in HSCT. But drug related factors such as safety, efficacy, toxicity profile in the setting of pre-existing organ dysfunction and potential drug interaction, need to be considered.
Ambisome is a liposomal formulation containing amphotericin B and is comparatively found to cause fewer infusional reactions and achieve superior plasma and tissue concentrations.
To determine the optimal approach for prophylactic antifungal therapy, we prospectively analyzed the efficacy and safety of low dose Ambisome, which is 1mg per kg body weight on alternate days in nineteen patients who underwent hematopoietic stem cell transplant at our institute, for the prophylaxis of IFI. This was a heterogeneous study group, having varied indications for transplant.
Results: The low dose regimen of 1mg/kg body weight on alternate days was well tolerated. Four out of nineteen patients developed manageable hypokalemia. No renal toxicity or infusional reactions were documented. However, a test dose was always administered. Only one patient having a T replete haploidentical transplant for follicular lymphoma developed probable IFI requiring anti-fungal therapy.
Conclusion: We conclude that low dose L-Amb may provide useful protection against invasive fungal infections in patients undergoing hematopoietic stem cell transplant.

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Determinants of Physical Activity Levels in Allogeneic Hematopoietic Stem Cell Transplantation Recipients

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Respiratory and skeletal muscle strength and submaximal exercise capacity and physical activity levels are known to be reduced in a significant percentage of patients prior to hematopoietic stem cell transplantation (HSCT). However, determinants of physical activity levels of HSCT recipients have not been investigated so far. The aim of this study was to determine the role of physical activity levels in HSCT recipients.
Patients and Methods: This prospective cross sectional study included 36 HSCT recipients. Physical activity levels were assessed using a multisensory armband device and pulmonary function tests. Functional exercise capacity was evaluated with 6-minute walking test (6MWT), respiratory muscle strength (MIP, MEP) with mouth pressure device, peripheral muscles strength with dynamometer, and dyspnea with Modified Medical Research Council (MMRC) dyspnea scale. Correlations of exercise capacity parameters were done with the grade of cardiac and pulmonary toxicity, febrile neutropenia, and transplant related mortality (TRM).
Results: All HSCT recipients were inactive (<3.0 METs) according to daily average METs (1.26±0.18 METs) and

88.88% were walking <7.500 steps/day. Daily average METS were inversely correlated with MMRC dyspnea scale (r 0.492, p=0.007). Adjusted DLCO values showed negative correlation with the grade of febrile neutropenia (r 0.612, p=0.007). The grade of cardiac toxicity showed negative correlation with adjusted DLCO values (p=0.006) and quadriceps femoris muscle strength (p=0.046). Respiratory and quadriceps femoris muscle strength were positively correlated with the number of steps per day (p=0.011 and p=0.001 respectively). Performance status prior to HSCT showed negative correlation with TRM (p=0.05). In multiple regression analysis; 24% of the variance in the daily average METs was explained by MMRC (p=0.07); 13% of the variance in survival duration explained by quadriceps femoris strength (p=0.03); 54.6 % of the variance in cardiac toxicity was explained by DLCO and quadriceps femoris strength (p=0.024).

Conclusions: Physical inactivity is a significant problem in HSCT recipients. Peripheral muscle strength and dyspnea are significant predictors of physical activity levels. Exercise interventions to improve cardiorespiratory fitness and muscle strength may lead to beneficial effects on transplant outcomes in terms of the grade of cardiorespiratory toxicities, febrile neutropenia and TRM.

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Implementing a Screening and Treatment Protocol for Latent Tuberculosis in Patients with Hematologic Malignancies in a Southern California Medical Center

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Tuberculosis is caused by the pathogenic species of the Mycobacterium tuberculosis complex. Following a primary tuberculosis infection, adequate T-lymphocyte responses are essential to preventing the progression of disease. Patients with hematologic malignancies are at increased risk for reactivation of latent tuberculosis infection (LTBI) due to T-cell immunodeficiency caused by the disease itself or the chemotherapy used as treatment. Incidence of tuberculosis varies significantly depending on country of birth and underlying hematologic malignancy. The highest rate has been identified among allogeneic hematopoietic stem cell transplant (HSCT) patients, followed by patients with non-Hodgkin lymphoma and patients with Hodgkin's lymphoma. Isoniazid (INH) therapy may be initiated in patients found to have LTBI. INH therapy carries the risk of adverse effects including hepatotoxicity and peripheral neuropathy. INH induced hepatotoxicity occurs in 0.1-0.15% of patients among the general population during preventative therapy. Data on the tolerability of INH in hematologic malignancy patients receiving concomitant chemotherapy is limited.

Primary objective: To investigate the incidence of LTBI in patients with hematologic malignancies at UC San Diego Health System.

Secondary objective: To investigate the safety and tolerability of INH for treatment of latent tuberculosis in patients with hematologic malignancies receiving chemotherapy.

This is a prospective, single center study using data collected from an electronic patient database. Recruitment is still on-going; we hope to enroll a total of 100 patients in this study. All patients presenting with hematologic malignancies at the Moores Cancer Center are screened for LTBI as a part of the standard of care using the QuantiFERON®-TB Gold Test (QFT-IT). A value of ≥0.35 IU/mL QFT-IT result is considered positive. Patients with values of 0.35-1 IU/mL will be retested in 3-6 months to confirm positivity. If patients consent to participate, data collection will begin and continued for 9 months if treatment for LTBI is initiated. Data collected: age, gender, race, place of birth, cancer diagnosis, transplant type/conditioning regimen, medication list, PPD result history, history of LTBI and past treatment, QFT-IT result, baseline renal function, liver function tests at baseline and throughout therapy if INH was initiated. Treatment decisions in the cases of a positive QFT-IT is at the discretion of the treating physician. A descriptive analysis including means, medians, ranges and proportions will be calculated.

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A Quality Improvement Project to Decrease Clostridium Difficile Associated Infection in a Bone Marrow Transplant Unit: A Multidisciplinary Approach

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Introduction: Clostridium difficile infection (CDI) is considered the most common cause of acute infectious diarrhea among hospitalized patients and is a major concern in the hematopoietic stem cell transplantation (HSCT) setting. HSCT patients constitute a highly vulnerable population for CDI. This susceptibility can be attributed to long hospitalizations, prolonged exposure to of broad-spectrum antibiotics and chemotherapy-related disruption of enteric mucosal barriers. With the increase of CDI prevalence over the last decade the morbidity, mortality, and medical care costs of CDI have reached historic highs; therefore there is a need for prevention policies that apply to the specific characteristics of this population. An infection prevention surveillance audit at the South Texas Veterans Health Care System Bone Marrow Transplant Unit, during a 3 month period (October-December 2013), revealed an increase in the rate of healthcare associated hospital onset (HAHO) CDI (>72 hours after admission).

Methods: We assembled a multidisciplinary team with the aim to decrease the rate of CDI over a 3 months period (January-March 2014). A team including physicians, nurses, pharmacists and infection preventionist was called in to evaluate the rates of CDI and establish procedures to decrease these rates. Interventions included the following: education of staff and patients about CDI prevention and transmission, hand hygiene awareness, proper use of cleaning products, de-cluttering of nurses' work station, decontamination of common areas, daily chlorhexidine baths, revision and review of the daily cleaning of rooms, environmental service supervisor visual room inspection and feedback after terminal cleaning, use of ultraviolet pulses of light (UVC pulsed technology), restriction of CDI positive patients to their room and contact precautions until 48 hours after resolution of diarrhea stools.

Results: Visual inspection of the room was increased to 100%, as rooms were not released until a sign was placed on the door signed by the environmental service supervisor performing the inspection. Usage of the UVC units increased from 17.5 per month (pre-intervention) on average to 42 per month (post intervention). Hand hygiene was 100% based on