from 48 states. Autologous and allogeneic HCT recipients were equally likely to enroll (P = .59) and view pages (P = .74). Across all races, non-white survivors were less likely to enroll compared to whites (P<.001), but once enrolled viewed as many pages (P = .18). 14% were computer use beginners, 52% were intermediate users, and 34% were experts; these groups did not differ in pages viewed (P = .89). Survivors from rural versus urban areas were equally likely to participate (P = .45) and utilize the site (P = .14). Once randomized to site access, 70% logged on at least once. The median number of pages visited was 7 (range 0-179). Participants ≥40 years old were more likely to login at least once compared with those <40 (P = .004) but age groups did not differ in pages viewed (P = .15). Females were more likely to visit the site than males (77% vs. 65%, P = .007) as well as to view more pages (M = 21.3, SD = 28.0 vs. M = 11.7, SD = 18.3, P<.001). Similarly, transplant survivors <10 years were more likely to enroll in the study than ≥10 year survivors (P<.001) but did not view more pages (P = .26).
Discussion: The internet provides access to long-term HCT survivors. While online approaches reach a broad population and are well utilized, additional strategies are needed for males and younger than 40 years old HCT survivors to engage them in the online resources.
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PEDIATRIC DISORDERS

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MULTI-INSTITUTIONAL EXPERIENCE OF HSCT FOR DOCK8 DEFICIENCY

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In 2009, mutations in the gene for dedicator of cytokinesis 8 (DOCK8) have been identified as the cause of the autosomal recessive variant of Hyper-IgE syndrome. The clinical presentation of this primary combined immunodeficiency is characterized by eczema, debilitating viral infections of the skin, chronic mucocutaneous candidiasis, pulmonary infections, severe allergies, vascular complications and a high risk for malignancy, mostly lymphoma or skin cancer.

While the long-term prognosis of affected patients is not yet clearly defined, the high morbidity and mortality of this disease suggest HSCT as a potential curative measure. On behalf of the EBMT inborn errors working party we retrospectively studied the outcome of HSCT in patients with DOCK8 mutations.

A total of fifteen patients from 10 institutions were identified, 4 of whom had been previously reported. Three patients had malignant disease. At a median age of 13 years (3-18) transplantation from a MUD (n = 9), MFD (n = 2) or MSD (n = 4) was carried out. Conditioning was fully myeloablative in 4, of reduced intensity in 10 or minimal in 1. After a median follow-up of 8 months (2-89) the overall survival is 80% (12/15). Only one patient had grade III or greater acute GVHD; he later developed extensive chronic GVHD and died from infection. Two other patients died, one from sepsis, the other from progression of pre-existing lymphoma. T-cell chimerism at last follow-up was >99% in 12/14 and 50-90% in 2/14. Of the 12 surviving patients 9 of 9 who were evaluable had complete correction of their immunodeficiency. Other symptoms such as eczema (disappeared in 11/12, improved in 1/12), allergies (5/7; 2/7), mollusca (6/8; 2/8), bacterial infections (6/6; 0/6), fungal infections (7/7; 0/7) and pulmonary function deficits (4/4; 0/4) responded very well. One patient developed a thyroid carcinoma 7 years post transplant, likely because of a TBI-containing conditioning regimen.

Longer follow-up will be needed to ascertain that HSCT will correct the malignancy risk, as the DOCK8 molecule has been implicated as a tumor suppressor and is expressed in extra-hematopoietic tissues. A survey to define the natural course of disease and to guide treatment recommendations for all patients is currently underway on behalf of ESID and EBMT. In summary, HSCT corrects the immunodeficiency and other disease manifestations in DOCK8 deficiency and this treatment should be offered at least to all patients with severe disease manifestations.

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HEMATOPOIETIC CELL TRANSPLANTATION FOR INFANTILE MALIGNANT OSTEOPETROSIS: THE SAUDI EXPERIENCE

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Infantile malignant osteopetrosis (IMO) is due to a heterogeneous group of mutations resulting in abnormal osteoclast function; more than half of the IMO cases have mutations in the TCIRG1 gene. Allogeneic hematopoietic cell transplantation (HCT) is currently the only curative therapy for IMO. We report here our experience in IMO at King Faisal Specialist Hospital & Research Center (KFSHRC).
Patients and Methods: Between January 1993 and December 2008, 25 children with IMO underwent HCT at KFSHRC, median time from diagnosis to HCT was 3.7 month (range, 1-66 months), and median age at HCT was 6 months, (range, 2-75 months), ten patients (40%) had severe hematopoietic deficiency, and severe visual impairment at HCT. Donor source was fully matched siblings in 23 patients and partially matched unrelated cord blood in 2 patients. All patients were conditioned with busulfan (BU) and cyclophosphamide (CY).
Results: Nine mutations were detected in TCIRG1, seven of which were novel. One novel mutation was detected in CLCN7 gene. Seven patients had no mutation detected in TCIRG1, CLCN7 or OSTM genes. Engraftment occurred in 23 patients (92 %). Acute GVHD and veno-occlusive disease occurred in 6 and 4 patients, respectively. Seven patients (28%) had secondary graft failure at a median of 6 months post HCT (range, 3-14 months). Sixteen (64%) patients remain alive. Chimerism studies at the last contact are available for 14 patients, and all but 2 patients have stable mixed chimerism. At median follow-up of 9.8 years (95% CI: 5.4-14.2 years) ranging from 3.6 to 15.2 years, the overall survival (OS) and event-free survival (EFS) are 55%, and 52%, respectively. All surviving patients had evidence of osteoclast function at the last evaluation, and none of them had any further vision deterioration.
Conclusion: Children with IMO have favorable survival after allogeneic HCT. Although engraftment is probably not significantly affected by the age, we recommend that early HCT be done to preserve vision and final height as much as possible. Due to the small number of patients, and the fact that a good percentage of our cases had no mutations in the known genes, we were not able to relate a specific genotype with outcome. However, TCIRG1 appears to be an important gene in IMO in Saudi patients, similar to other populations. Larger series are required to demonstrate a genotype–phenotype, and genotype-outcome correlation.

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HIGHLY VARIABLE PLASMA CONCENTRATIONS OF VORICONAZOLE IN CHILDREN UNDERGOING HSCT: THERAPEUTIC DRUG MONITORING (TDM) IS INDISPENSABLE

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Background: Invasive fungal infections are of great concern in pediatric HSCT recipients. Voriconazole is an important drug both for prophylaxis as well as for therapy. Optimum trough levels are between 1-5 mg/l. It is unclear whether these levels are reached with current pediatric dosing schedules. We retrospectively analysed the use of voriconazole in our unit between 2007 and 2011.
Use of voriconazole: 92 children between 0-19 years of age underwent HSCT. 57 of them (64%) were treated with voriconazole. 21% of them were <2 yrs, 47% 2-12-yrs and 32 % >12 yrs.