evaluation pre-BMT predicting outcomes post-BMT. We retrospectively analyzed 204 consecutive first adult (≥18 years) autologous (n = 108) or allogeneic (n = 96) BMT pts treated from 7/05 to 5/08 to analyze BMT outcomes in relation to a comprehensive psychosocial evaluation. 200/204 (98%) had a psychosocial inventory assessment collected by in-person interview with a BMT social worker during their routine pre-BMT evaluation. The psychosocial inventory had questions regarding employment, marital status, education, financial concerns, transportation and local lodging needs, degree of understanding of diagnosis and treatment, tobacco, alcohol and drug use, importance of and comfort with religious beliefs, and personal or family suicidal ideation or attempt. Median age was 53 years (range 18–74), 62% were male, 93% were White, diagnoses included leukemia (n = 73), lymphoma (n = 71), myeloma (n = 36), hematologic disorders (n = 17), and solid tumors (n = 3), donors were autologous (n = 106), related (n = 41), or unrelated (n = 53). Median follow-up in the survivors was 1.1 years (range 0.1–3). By univariate analysis, significant predictors of decreased 1-year overall survival (OS) in allogeneic BMT pts were KPS ≤ 80 (47% vs. 75%, p = 0.003), marital status (married 39% vs. never married 69% vs divorced 90%, p = 0.016), not living alone pre-BMT (48% vs. 100%, p = 0.012) and smoking status (ever 42% vs. never 67%, p = 0.07). Marital status was significantly related to age with median 53 vs. 36.5 vs. 46.7 years of married vs. never married vs. divorced pts. By univariate analysis, the only significant predictor of decreased 1-year OS in autologous BMT pts was living >30 minute drive from the BMT center and needed local lodging (72% vs. 93%, p = 0.006). For allogeneic BMT, multivariate analysis demonstrated KPS ≤ 80 (RR = 4.6, 95% CI 1.4–15, p = 0.01), married compared to divorced (RR = 5.9, 95% CI 0.8–44, p = 0.08) and former/current smokers (RR = 1.8, 95% CI 0.9–3.4, p = 0.08) had an increased risk of death. Substituting age for marital status in the model yielded only KPS as a significant factor. Some psychosocial factors may be related to patient and disease related characteristics which may yield selection bias in the decision to transplant or not. Further analyses of psychosocial factors in larger, more homogeneous patient populations may help clarify risk subgroups.

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INCIDENCE, CHARACTERISTICS AND OUTCOME OF CYTOMEGALOVIRUS, ADENOVIRUS, AND BK VIRUS CO-INFECTION IN PEDIATRIC RECIPIENTS OF STEM CELL TRANSPLANT

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Introduction: Viral infections are a common cause of complication after hemopoietic stem cell transplantation (HSCT). Data on viral co-infection following HSCT in pediatrics is limited. We studied the incidence, clinical characteristics and outcome of cytomegalovirus (CMV), adenovirus (ADV), BK virus (BKV) and JC virus (JCV) co-infection in pediatric recipients of HSCT.

Methods: We performed quantitative PCR of ADV, BKV and JCV in 191 blood samples from 73 pediatric patients, initially tested for quantitative CMV PCR following HSCT. We retrospectively reviewed medical records among these patients.

Results: Viral DNA was presence in 55 (75.3%) of 73 patients. The incidence of viral detection was highest for BKV, followed by CMV, ADV and JCV (24, 16, 8 and 0.4 cases per 1000 person-weeks, respectively). The median plasma CMV, ADV and BKV viral load (copies/ml) was 8,350, 8,380 and 77.2, respectively. Viral co-infection was common and occurred in 27 (37%) of 73 patients, of whom 22 and 5 were dual and triple viruses, respectively. The major viral co-infections were CMV plus BKV, ADV plus BKV, and CMV, ADV plus BKV ((12 (16.4%), 6(8.2%) and 5(6.8%) of 73 patients, respectively). A peak ADV viral load was significantly higher in patients who had ADV viral co-infection as compared to ADV mono-infection ($p = 0.017$), whereas a peak CMV viral load did not differ between patients with CMV viral co-infection and CMV mono-infection ($p = 0.218$). In contrast, a peak BKV viral load was significantly higher in patients who had BKV mono viral infection than BKV viral co-infection ($p = 0.003$). From multivariate analysis, type of HSCT was significantly associated with viral co-infection (OR 4.2 (95%CI 1.6–10.7, $p = 0.003$) and allogeneic HSCT from unrelated donor was the most predominant. Symptomatic infection occurred in 25 patients, of whom 15 (55.6%) had viral co-infection. Hemorrhagic cystitis was noted to be the only presentation in 15 (60%) whereas multi-organ dysfunction was noted in 7 (28%) of 25 patients. Among patients with multi-organ dysfunction, peak viral load of CMV, ADV and BKV was higher, more types of virus co-reactivation were detected and 5 of them had died.

Conclusion: In pediatric HSCT, symptomatic viral co-infection is common.Patients who succumbed with the more types of virus co-reactivation had higher probability of having multiple-organ dysfunctions. Routine ADV and BKV PCR monitoring is encouraged in pediatric recipients of allogeneic HSCT.

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RELATED DONOR OUTCOMES FROM THE JAPANESE REGISTRY – THE IMPORTANCE OF PRE-REGISTRATION SYSTEM

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Background: Although peripheral blood stem cell (PBSC) donation has been considered safe and less stressful, certain fetal or life-threatening accidents have been reported among donors. Since the Japan Marrow Donor Program requires the confirmation of the safety and the risk of PBSC donation at family donors prior to applying this technique for volunteer donors, the Japan Society for Hematopoietic Cell Transplantation (JSHCT) has established a nation-wide consecutive pre-registration system for PBSC family donors.

Methods: The JSHCT mandates the registration of every PBSC family donor at the donor registration center then, issues donor identification number to each donor. The society also requires every harvest center to observe the JSHCT standards for donor eligibility and to notify it of any severe adverse events, the results of a day30 check and of the annual health check for five years. The cost for the day 30 check is covered by the national health insurance in Japan and the cost of the annual health check for 5 years is covered by the JSHCT with the support of two G-CSF producing and (or) marketing companies. To gather information on bone marrow family donors, the JSHCT collaborated with the European Blood and Marrow Transplant Group.

Findings: Our prospective survey revealed that certain acute severe adverse events occurred even in donors who had been confirmed to be healthy. However, no mortality nor morbidity cases were found, suggesting that the pre-registration system with its standards for donor eligibility has been effective in preventing real life-threatening adverse events. The results of the annual health check for 5 years showed that the incidence of hematological malignancies among PBSC donors was not high compared with that among retrospectively surveyed bone marrow donors.

Interpretation: The donor pre-registration system that sets strict standards for donor eligibility is useful to know the real figures on PBSC donors and to assure donor safety. Such a system should be applied to all hematopoietic stem cell donors.

LEUKEMIA

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MONOCULTURE-DERIVED LEUKEMIA AND MULTIVIRUS SPECIFIC CYTOTOXIC T-LYMPHOCYTES FOR IMMUNOTHERAPY OF ALL IN HEMATOPOIETIC STEM CELL AND UMBILICAL CORD BLOOD TRANSPLANTS

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Infusion of donor derived cytomegalovirus (CMV), adenovirus (Ad) and Epstein-Barr-Virus (EBV) specific cytotoxic T lymphocytes (CTLs) appears to safely protect against viral infections post hematopoietic stem cell transplantation (HSCT). HSCT for pre-B acute lymphoblastic leukemia (B-ALL) is associated with a high rate of relapse. We hypothesized that monoculture-derived multivirus specific CTLs can be engineered to express chimeric antigen receptors (CAR) specific