ORAL PRESENTATIONS

ALLOGENEIC TRANSPLANTS

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Moderate/Severe Grade of Chronic Graft Versus Host Disease and Younger Age (Less Than 45 Years Old) Are Risk Factors for Avascular Necrosis in Adult Patients Undergoing Allogeneic Hematopoietic Cell Transplantation

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Background: Avascular necrosis (AVN) is a debilitating complication of allogeneic hematopoietic cell transplantation (alloHCT).
Methods: A retrospective review of 845 consecutive patients ≥ 17 years of age who underwent alloHCT at Princess Margaret Cancer Centre from 2002 to 2013 was conducted to determine the incidence and risk factors for AVN. Univariate and multivariate analyses were conducted using EZR using cumulative incidence method considering competing risk.
Results: 48 cases of AVN were identified. Median follow up duration among survivors was 3.4 years. Frequent locations of AVN were: hip (n=37), shoulder (n=13), knee (n=13), ankle (n=2), wrist (n=1), and elbow (n=1).

Incidence of AVN was 6.3% (95% CI 4.6-8.5%) and 8.9% (6.5-11.8%) at 4 and 8 years respectively. Risk factor analysis revealed the following were significantly associated with higher risk of AVN in a univariate analysis: age < 45 years (p=0.0039), grade 3-4 acute GVHD (vs grade 0-2; p=0.054), development of chronic GVHD (vs no chronic GVHD; p=0.000016), reduced intensity conditioning (vs myeloablative; p=0.017) and a diagnosis of acute leukemia (vs others; p=0.045). Multivariate analysis confirmed two risk factors: 1) younger age (≤45 years), 9.0% vs 4.4% (p=0.011, hazard ratio [HR] 2.134, 95% CI [1.186-3.843]) and 2) chronic GVHD development, 10.2% vs 1.4% (p=0.0002, HR 5.762, 95% CI [2.289-14.510]).

Incidence of AVN was 15.7% in patients with moderate to severe grade chronic GVHD and 3.6% in those with mild grade GVHD (p=0.00015).

A risk score model was generated assigning 1 score to each risk factor and summing the score thus dividing into three groups: low (score 0, n=349, 41.3%), intermediate (score 1, n=379, 44.9%) and high risk (score 2; n=116, 13.7%) (Figure 1). This risk score could stratify the patients according to AVN risk ($p=2.49x10^{-10}$). The risk of AVN was 1.5% (0.5-3.6%) in low, 6.2% (3.7-9.5%) in intermediate and 20.8% (13.0-29.9%) in high risk group.
Conclusions: Moderate/severe grade of chronic GVHD and younger age (≤45 years old) are key risk factors for AVN following allogeneic HCT.

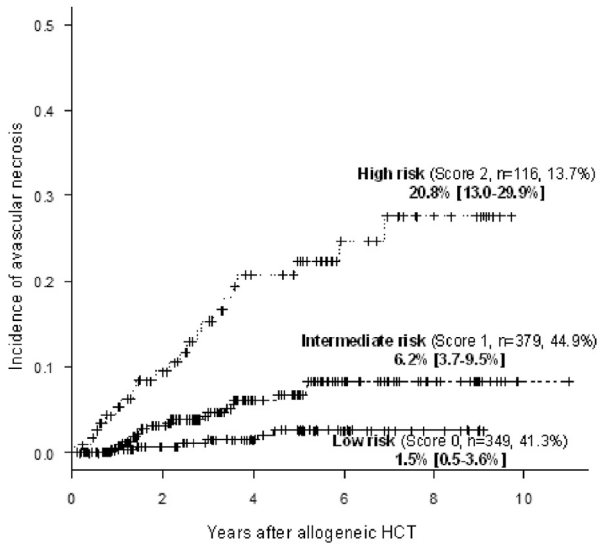

Figure 1. Incidence of avascular necrosis according to the risk score based on the development of chronic GVHD and age (45 years old or younger).

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Allogeneic Hematopoietic Cell Transplantation for Adult Chronic Myelomonocytic Leukemia

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Allogeneic hematopoietic cell transplantation (HCT) is the only potentially curative treatment for patients with chronic myelomonocytic leukemia (CMML), however there little data regarding prognostic factors and transplant outcomes. Recently a CMML-specific prognostic scoring system (CPSS) was validated in the non-transplant setting [1]. We sought to validate this scoring system in the HCT setting. We identified 209 adult patients undergoing HCT for CMML reported to the Center for International Blood and Marrow Transplant Research (CIBMTR) from 2001 through 2012. The median age at transplant was 57 years (range 23-74), with a majority being male (70%). Most had Karnofsky Performance Score of 90-100% (61%). Eighty eight (42%) patients had low/intermediate-1, while 79 (38%) had intermediate-2/high, and 42 (20%) had missing CPSS scores. Based on CPSS definition, 50% had favorable, 19% had intermediate, 17% had poor risk, and cytogenetic data were missing for 14%. Median time from diagnosis to transplant was 8 months (range 2-170). HCT were performed with HLA identical siblings (35%), matched unrelated donors (45%), partially matched unrelated donors (15%), or mismatched/indeterminate matched unrelated donors (4%). Patients received bone marrow (16%) or peripheral blood (84%). Patients received myeloablative (51%), reduced-intensity (41%), non-myeloablative (< 5%) or other (<4%) conditioning regimens. GVHD prophylaxis was cyclosporine-based (37%), FK-506-based (61%), methotrexate alone (<1%) or missing (<1%). Median follow up was 51 months (range of 3-122). On multivariate analyses, CPSS scores, KPS, and graft source were significant predictors of overall survival (p=0.004, p=0.01, p=0.01 respectively; CPSS and OS figure below). Higher CPSS scores were not associated with disease free survival (DFS),