LYMPHOMA/MULTIPLE MYELOMA

243

PRE-TRANSPLANT POSITRON EMISSION TOMOGRAPHY (PET) SCAN IS NOT PREDICTIVE OF RELAPSE AND SURVIVAL IN NON-HODGKIN LYMPHOMA (NHL) PATIENTS UNDERGOING ALLOGENEIC TRANSPLANTATION

Bachanova, V.[1], Karagulle Kendi, A.T.[2], Froelich, J.[2], Cao, Q.[1], Celalettin, U.[1], Burns, L.J.[1] [1] University of Minnesota, Minneapolis, MN; [2] University of Minnesota, Minneapolis, MN

Allogeneic hematopoietic cell transplantation (HCT) is increasingly used for patients with NHL. PET has become a standard for lymphoma evaluation and a valuable prognostic tool to risk-stratify treatments. The role of PET in the allogeneic HCT setting is controversial.

This study investigated the value of PET status pre and at day 100 post HCT as a predictor of relapse and survival post allograft.

Seventy-eight patients with NHL received allogeneic HCT at the University of Minnesota from 2004-2009; 59 patients (median age 51 years) had pre-transplant PET evaluation and images were reviewed centrally by nuclear medicine radiologist. Most patients were in remission (33 PR, 17 CR) and 9 patients had chemo-refractory disease; follicular lymphoma (n = 26) was more common than diffuse large B-cell (n = 11), mantle cell (n = 10) and other lymphomas (n = 12). PET scan pre-transplant was positive in 38 patients (PET pos group 64% vs PET neg group 36%). A third had PET-avid extranodal involvement. Most patients received reduced intensity conditioning (66%) and related donor or umbilical cord blood grafts (53% and 46%, respectively).

3-year lymphoma-free survival (LFS) and overall survival (OS) of the entire cohort were 52% (95%CI 38-64%) and 67% (95%CI 53-78%). LFS and OS of the PET pos group was similar to the PET neg group (52% vs 54%, p = 0.57; 68% vs 69%, p = 0.66; respectively). In univariate analysis, extranodal PET positivity, >3 nodal sites involved, elevated lactic dehydrogenase and marrow involvement pre-transplant had no impact on OS or relapse rate.

At a median follow-up of 45 months (range 12-81 months); the cumulative relapse rate at 1 year was 17% and was similar in PET pos and PET neg groups (19% [95% CI 6-31%] vs 14% [95% CI 0-29%]; p = 0.59). Transplant mortality (TRM) at 1-year was low for the entire cohort (15% [95% CI 6-24%]). PET status had no impact on TRM and acute GVHD.

Forty-one patients had available surveillance PET evaluation at day 100 post-transplant. The 1-year relapse rate and LFS were significantly improved for those patient who were PET negative vs PET positive (relapse 13% vs 42%; p = 0.02; LFS 65% vs 25%, p<0.01).

In conclusion, pre-allo HCT PET scan for NHL does not predict transplant outcomes; however, a negative PET scan 100 days post-allo HCT is a valuable tool prognostic of superior LFS. Studies evaluating role of PET in lymphoma subsets and development of novel transplant interventions for patients with high relapse risk are warranted.

244

ALLOGENEIC STEM CELL TRANSPLANTATION IN 59 PATIENTS WITH ADULT T-CELL LEUKEMIA/LYMPHOMA (ATLL) – A SINGLE CENTER'S 13 YEARS EXPERIENCE

Nakano, N., Takatsuka, Y., Takeuchi, S., Tokunaga, M., Kubota, A., Tokunaga, M., Itoyama, T., Makino, T., Utsunomiya, A. Imamura Bun-in Hospital, Kagoshima, Japan

There were 59 (33 male, 26 female) ATLL patients who have consecutively undergone allo-SCT between June 1998 and March 2011 at Imamura Bun-in Hospital. Median age was 50 (range: 32-65) years. Fifty patients were considered 0-1 of ECOG performance status (PS) and rest of 9 were ≥2 at the time of SCT. Fifty-three patients out of 59 were diagnosed as acute type ATLL, 5 lymphoma type, and one chronic type with poor prognostic factors at the time of transplantation, respectively. Stem cell sources were 36 BM (9 related donors, 27 unrelated donors), 19 PB and 4 CB, respectively. Thirty-five patients received myeloablative conditioning (MAC) regimens and 24 reduced intensity conditioning (RIC) regimens. Forty-seven patients out of 59 were used busulfan based non-TBI regimens. Sixteen patients were in CR at SCT, and 43 non-CR (9 PR, 16 SD, and 18 PD), respectively. Cumulative incidence of ANC recovery (≥500/μl) was 98.2% after SCT. Probabilities of grade I to IV, II to IV acute GVHD and chronic GVHD were 71%, 44%, and 31%, respectively. Interestingly, the incidence of CMV viremia, defined CMV-related external matrix protein pp65-antigenemia positive in blood, after SCT was extremely high (94.4%) in ATLL patient status post SCT compared with reported other diseases. Overall survival (OS) and disease free survival (DFS) at 2 years after SCT were 44.5% and 32.5%, respectively. Notably, 2-yrs and 5-yrs OS in CR patients were 72.7% and 48.5%, respectively. Cumulative incidence of relapse at day100 and 1 year after SCT were 33.2% and 49.2% respectively. Also cumulative incidence of non-relapse mortality (NRM) at day100 after SCT was 20.4%. In univariate analysis, significant factors contributed to OS were CR status and 0-1 of PS at SCT, incidence of acute and chronic GVHD, HLA matched donor, and non-TBI regimens. CR status, 0-1 of PS at SCT, incidence of chronic GVHD, BM, and HLA matched donor were significant factors contributed to favorable outcome about DFS. MAC regimens didn't show favorable significance contributed to OS and DFS, but reduce the incidence of early relapse compared with RIC regimen. In multivariate analysis, incidence of chronic GVHD significantly contributed to favorable outcome about OS and 0-1 of PS, incidence of chronic GVHD and CR status contributed to favorable outcome about DFS. In conclusion, allo-SCT can be feasible treatment for ATLL and graft-versus-ATLL effect possibly exist given that chronic GVHD was shown favorable survival factors.

245

WT1-SPECIFIC T-CELL RESPONSES FOLLOWING T CELL-DEPLETED ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION AND DONOR LYMPHOCYTE INFUSIONS IN PATIENTS WITH HIGH-RISK MULTIPLE MYELOMA

Tyler, E., Jungbluth, A.A., O'Reilly, R.J., Koehne, G. Memorial Sloan-Kettering Cancer Center, New York, NY

We are performing a clinical trial using T-cell depleted allogeneic HSCT (TCD HSCT) from HLA compatible donors for patients (pts) with relapsed multiple myeloma (MM) and high-risk cytogenetics. Pts receive busulfan, melphalan, fludarabine and rabbit ATG followed by allo TCD HSCT. T-cell depletion is performed by positive CD34 selection achieving < 10^4CD3+/kg for all grafts. Pts are eligible to receive low doses of donor lymphocyte infusions (DLI) ($5x10e^5$ – $1x10e^6$ CD3+/kg) no earlier than 5mos post TCD HSCT.

We evaluated the significance of WT1-specific cellular immune responses following TCD HSCT and DLI in these pts. WT1-specific T-cell frequencies were determined in peripheral blood and bone marrow specimens by staining for intracellular IFN-γ production in response to WT1 peptides, and/or by tetramer analysis, where available.

Of 17 pts evaluated, all pts exhibited low frequencies of WT1-specific T-cell responses pre TCD HSCT. Ten of these pts received DLI post TCD HSCT. All 10 pts developed increased WT1-specific T cell responses post DLI. These increments in WT1-specific T-cell frequencies were associated with reduction in specific myeloma markers. Four pts with increasing M protein post TCD HSCT achieved durable complete remissions post DLI in the abscence of GvHD and are currently 18, 23, 24 and 40mos post allo BMT. Long-term evaluation of these pts demonstrated fluctuations in persisting WT1-specific T-cell frequencies following DLI.

In one representative pt, a peak of 3.5% (72/ml) WT1-specific $CD8^+$ T cells was detected in blood by staining with tetramer HLA-A*0201 RMF. This peak T-cell response post TCD HSCT and DLI coincided with disease regression. The pt has remained in complete remission for more than 3 years post transplant, with levels of WT1-specific $CD8^+$ T cells ranging from 0.3-1.5% still persisting. Findings from concurrent molecular chimerism studies conducted on isolated T cells post TCD HSCT suggest that the WT1-specific T cells are of donor origin.

Immunohistochemical analyses of WT1 and CD138 co-staining in bone marrow specimens demonstrated consistent co-expression within malignant plasma cells. In 6 pts tested, WT1 expression in the bone marrow correlated with the extent of malignant plasma