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Blood 142 (2023) 3571–3572

The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

722.ALLOGENEIC TRANSPLANTATION: ACUTE AND CHRONIC GVHD, IMMUNE RECONSTITUTION

PB CD8 T_N and CD4 T_{EM} on day30 after Allo-HSCT Is a Predictive Marker for the Development of aGVHD

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Introduction :
Acute GVHD (aGVHD) is a common complication 20-60 days after allo-HSCT and can be life-threatening in some cases. It has been reported to be associated with T-cell immune reconstitution, but the detailed mechanisms are not clear. Early post-transplant lymphocyte recovery is mainly due to homeostatic peripheral expansion (HPE), which is variable depending on various factors such as donor source, recipient's age. T cell-related cytokines, such as sIL-2R , IL-7 and TNFr1 are known biomarkers for the aGVHD, but there are few reports that predict the aGVHD incidence rate using the peripheral blood (PB) lymphocyte subset. We evaluated the effect of PB lymphocyte subset in early post-transplant period on aGVHD.

Methods :
We retrospectively analyzed 83 patients (40 in AML, 12 in ALL, 1 in MPAL, 13 in MDS, 2 in MPN, 9 in malignant lymphoma/LPD and 3 in AA) who underwent the allo-HSCT in our hospital from 2013 to 2023. The median age of patients was 44 years (range:17-66). Sixteen received BM, 47 received PB (including 28 with haploidentical (9 with ATG, 19 with PTCY)), and 20 received CB. GVHD prophylaxis was FK506+MTX in 61 patients, CyA+MTX in 3 and MMF+FK506+CY in 19. The median observation period was 495 [38-2983] days. PB lymphocyte subset (Naïve Tcell (T_N):CD45RA+CD62L+, Central memory Tcell (T_{CM}) :CD45RA-CD62L+, Effector memory Tcell (T_{EM}) :CD45RA-CD62L-, Effector memory Tcell re-expressed CD45RA (T_{EMRA}) :CD45RA+CD62L-, Th1:CD3+4+CXCR3+CCR6-, Th2:CD3+4+CXCR3-CCR6-, Th17:CD3+4+CXCR3-CCR6+) at day30 (range:28-35) after transplantation were analyzed by FCM.

Results :
Twenty-five patients had grade II-IV aGVHD, and 11 had grade III-IV aGVHD. Patients with Grade II-IV aGVHD exhibited significantly lower proportion of CD8+T_N as compared to non aGVHD groups (GVHD+: 17.7 ± 13.3%; GVHD-: 30.9 ± 16.3%; $p < 0.001$) . In contrast, the proportion of CD4+T_{EM} and CD8+T_{EM} were higher in the Grade II-IV acute GVHD group (GVHD+: 30.9 ± 23.1%; GVHD-: 21.9 ± 15.6%; p=0.04, GVHD+: 36.1 ± 16.2%; GVHD-: 22.7 ± 14.7%; $p < 0.001$, respectively). We found a strong statistical correlation between the proportion of CD8+T_N and CD8+T_{EM}. The cumulative incidences of Grade II-IV and III -IV acute GVHD at day + 100 for CD8+T_N <20% group was 56.9% and 29.6% compared with 14.2% and 6.3% for the CD8+T_N >20% group ($p < 0.001$ and $p < 0.01$). Similarly, the cumulative incidences of Grade II-IV and III -IV acute GVHD at day + 100 for CD4+T_{EM} >30% group was 48.1% and 32.6% compared with 22.2% and 5.9% for the CD4+T_{EM} <30% group (p= 0.02 and $p < 0.01$).
Two-year NRM was higher in the CD8+T_N <20% group than in the CD8+T_N >20% group (26.3% vs 4.2%, p=0.008). The two-year cumulative incidence of relapse (CIR) was comparable between the two groups, but tended to be lower in the mismatched CR group (CD8+T_N <20%: 33.1% versus CD8+T_N >20%: 43.4%, p=0.31).

Conclusion :
PB CD8 T_N and CD4 T_{EM} fraction on day30 is a predictive biomarker for the development of acute GVHD.

Disclosures No relevant conflicts of interest to declare.

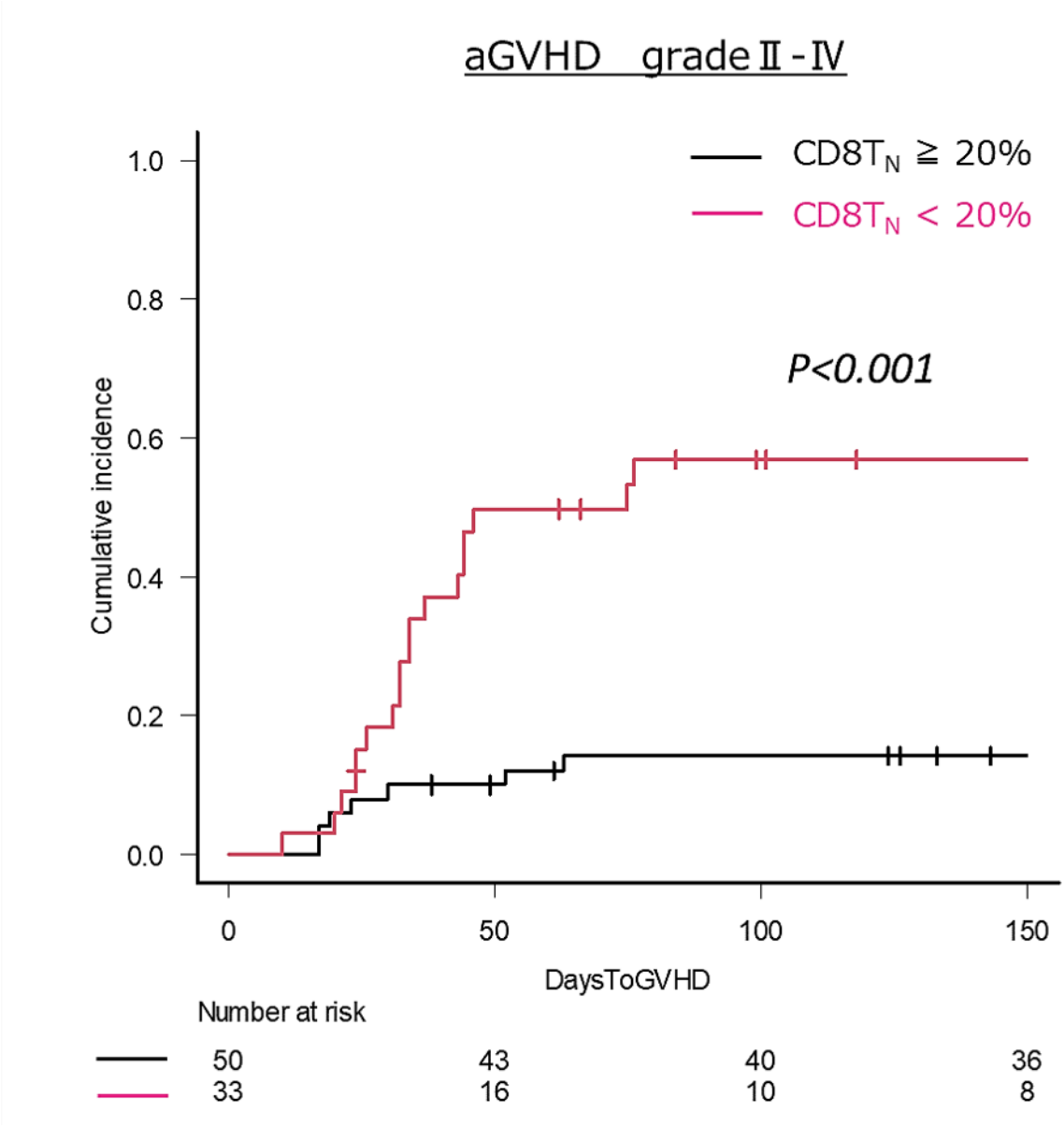

Figure 1

https://doi.org/10.1182/blood-2023-183078