View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Elsevier - Publisher Connector

428

Prevalence of Vitamin D Insufficiency in Adult Hematopoietic Cell Transplant (HCT) Patients with Documented Osteopenia or Osteoporosis after Steroid Exposure: A Quality Assurance Study

*Erin M. Schmidt, **Kerry K. McMillen**. Nutrition, Seattle Cancer Care Alliance, Seattle, WA*

Background: Steroid exposure is a known risk factor for osteopenia and osteoporosis. Vitamin D insufficiency is a known factor that contributes to bone loss. Low concentrations of vitamin D are associated with impaired calcium absorption, negative calcium balance and a compensatory rise in parathyroid hormone, which results in excessive bone resorption. Historically at Seattle Cancer Care Alliance, adult allogeneic HCT patients treated with steroids routinely have a Dual Energy X-ray Absorptiometry (DEXA) scan at departure. While many patients were found to have osteopenia or osteoporosis, it was unknown how many of these patients were additionally vitamin D deficient.

Objective: The aims of this quality assurance study were: 1) to identify the prevalence of vitamin D insufficiency in adult HCT patients with osteopenia or osteoporosis post-HCT and 2) to evaluate the need to change standard practice guidelines at our center to assess for vitamin D insufficiency more regularly in at-risk groups.

Design: We identified all allogeneic HCT patients with post-HCT steroid exposure and documented osteopenia or osteoporosis on departure DEXA scan over a six month period. A serum 25-OH vitamin D level was drawn on patients meeting these criteria.

Results: 40 adults met inclusion criteria: 22 males and 18 females. All patients were receiving 1500 mg calcium and 800 international units vitamin D3 daily with combination of diet, multivitamin and/or supplements per standard practice guidelines at Seattle Cancer Care Alliance. All patients were counseled by a registered dietitian to ensure adequate calcium and vitamin D intake.

4 patients had deficient 25-OH vitamin D levels (25-OH vitamin D $<$20 ng/mL), 25 patients had insufficient levels (25-OH vitamin D 20-30 ng/mL), 11 patients had normal vitamin D levels ($>$30 ng/mL).

The prevalence of insufficiency or deficiency was 73% (29/40). Stratified by age, the prevalence of insufficiency or deficiency was:

20-29 years old 8% (3/40)
30-39 years old 10% (4/40)
40-49 years old 20% (8/40)
50-59 years old 15% (6/40)
$\geq$60 years old 20% (8/40)

Males comprised 50% patients with 25-OH vitamin D deficiency. 65% patients with 25-OH vitamin D insufficiency were males, 35% females.

Conclusion/Applications: 25-OH vitamin D insufficiency and deficiency are prevalent in post-HCT patients with confirmed osteopenia and/or osteoporosis. Vitamin D insufficiency and deficiency were prevalent across all ages and genders highlighting the need to assess vitamin D status in the total patient population.

Based on these findings, standard practice was modified at Seattle Cancer Care Alliance to include a 25-OH vitamin D level pre-HCT and at day 80 post-HCT to better identify and treat 25-OH vitamin D insufficiency/deficiency.

429

Allogeneic Hematopoietic Cell Transplantation Is a Curative Treatment Option for Advanced-Stage Chronic Myeloid Leukemia in the TKI Era, a Single Institution Retrospective Study of 29 Post AP/BC Cases

Hiroki Mizumaki [1], Shinsuke Takagi [1], Naoyuki Uchida [1], Kosei Kageyama [1], Daisuke Kaji [1], Sachie Wada [1], Aya Nishida [1], Kazuya Ishiwata [1], Masanori Tsuji [1], Hisashi Yamamoto [1], Go Yamamoto [1], Yuki Asano-Mori [1], Shigeyoshi Makino [2], Akiko Yoneyama [3], Atsushi Wake [1], Koji Izutsu [1], Shuichi Taniguchi [1]. *[1] Department of Hematology, Toranomon Hospital, Tokyo, Japan; [2] Department of Transfusion Medicine, Toranomon Hospital, Tokyo, Japan; [3] Department of Infectious Disease, Toranomon Hospital, Tokyo, Japan*

Background: The prognosis of chronic myeloid leukemia (CML) in advanced stages (accelerated phase or blast crisis) is still poor even with tyrosine kinase inhibitors (TKIs). Allogeneic hematopoietic cell transplantation is the only curative treatment for them.

Method: Using our database, we retrospectively collected CML patients transplanted at Toranomon Hospital between June 2004 and March 2014, after the introduction of TKIs in Japan.

Result: Twenty-nine consecutive patients were extracted. The median age was 52 years (range; 16-70). The disease status at diagnosis was chronic phase (CP, n=11), accelerated phase (AP, n=5) and blast crisis (BC, n=13). All patients were treated with TKIs before transplantation including imatinib (n=15), nilotinib (n=1), dasatinib (n=6), imatinib/dasatinib (n=4), nilotinib/dasatinib (n=1) and imatinib/nilotinib/dasatinib (n=2). All of 11 patients in CP at diagnosis progressed into AP/BC in their course and only 3 patients achieved second CP at transplantation. On the other hand, 11 of 18 patients in AP/BC at diagnosis achieved CP at transplantation and the remaining 7 patients did not achieve CHR (Fig.1). The median HCT-CI and EBMT score at transplantation was 2 (range, 0-5) and 5 (range, 0-7), respectively. Additional cytogenetic abnormalities developed in 19 of 29 patients until transplantation. Point mutations in ABL gene were detected in 9 of 20 patients (45%) in their course. Overall, 14 of 29 (48%) patients underwent transplantation in CP stage. The donors were related PBSC (n=6), unrelated BM

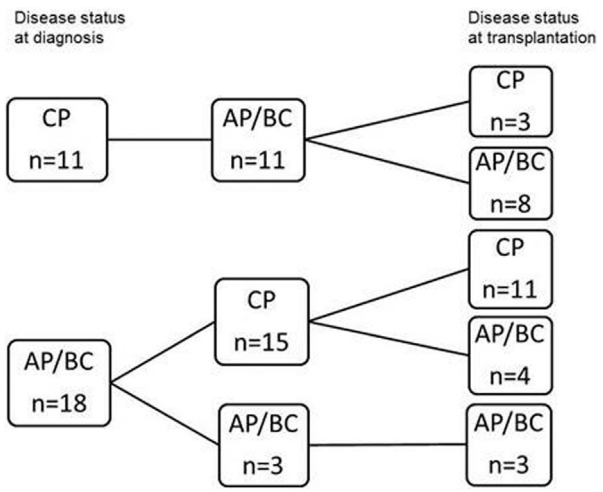

Figure 1. Disease status

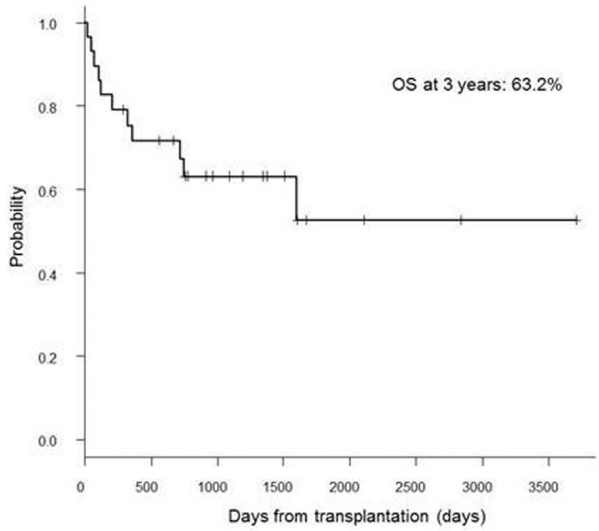

Figure 2. Overall survival (OS)

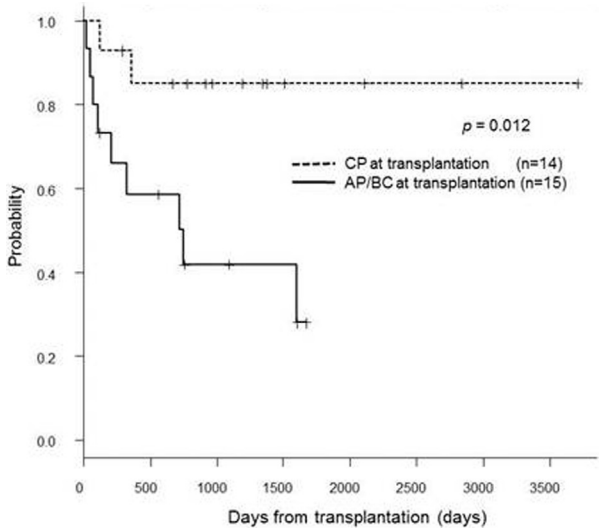

Figure 3. OS by disease status at transplantation

(n=4) or unrelated CB (n=19). The conditioning regimens were myeloablative in 20 patients and reduced-intensity in 9. Twenty-seven patients achieved neutrophil engraftment at a median day of 19 (range, 10-34). The cumulative incidence of neutrophil engraftment was 93.1% at day 42 (patients engrafted, n=27; dead before day 19, n=2). At 3 years, the cumulative incidence of relapse and non-relapse mortality was 32.3% and 14.0%, respectively. In 15 patients who did not achieve CP before transplantation, 11 patients (73.3%) achieved CR after transplantation. With a median follow-up of survivors of 1144 days (range, 127-3705), overall survival (OS) and event free survival (EFS) at 3 years was 63.2% and 56.3%, respectively. In univariate analysis, the variables that influenced on OS were disease status at transplantation (CP vs. AP/BC, 85% vs. 42%, p=0.012), karyotype (sole Ph-chromosome vs. additional cytogenetic abnormalities, 90% vs. 47.5%, p=0.042) and conditioning regimen (MAC vs. RIC, 72.7% vs. 41.7%, p=0.039). In multivariate analysis, the only variable that influenced on OS was disease status at transplantation (p=0.015).

Conclusion: We concluded that allogeneic hematopoietic cell transplantation from any cell sources could become a promising option for the patients with CML in advanced stage, especially if they achieved CP before transplantation.

430

Clinical Outcomes of HLA-DPB1 Mismatches in 10/10 HLA-Matched Donor-Recipient Pairs Undergoing Allogeneic Stem Cell Transplant

Ann M. Moyer [1], Shahrukh Hashmi [2], Cynthia M. Kroning [1], Walter K. Kremers [3], Steven R. De Goey [1], Mrinal Patnaik [2], Mark R. Litzow [2], Dennis A. Gastineau [1,2], William Hogan [2], Justin D. Kreuter [1], Laurie L. Voit [1], Manish Gandhi [1].
[1] *Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, MN;* [2] *Division of Hematology, Mayo Clinic, Rochester, MN;* [3] *Department of Health Sciences Research, Mayo Clinic, Rochester, MN*

Background: Matching for HLA-DPB1 lowers relapse risk in allogeneic hematopoietic stem cell transplantation (ASCT), but this locus is not in linkage disequilibrium with the remainder of the HLA genes, making matching more difficult. Recent studies have suggested that after classifying HLA-DPB1 mismatches based on T-cell epitope group, avoiding non-permissive mismatches leads to improved survival. We tested this hypothesis in our patient population.

Methods: We conducted a retrospective analysis of 78 patients who underwent ASCT at the Mayo Clinic 1/1/2008 - 12/21/2010. Patients with unrelated volunteer donors were matched for HLA-A, B, C, DRB1 and DQB1 loci (10/10) at the allele level without consideration of the HLA-DPB1 locus. Patient and donor HLA-DPB1 genotyping was performed by reverse SSO typing and the ImMunoGeneTics/HLA (IMGT/HLA) T-cell epitope matching algorithm was used to determine mismatch status as permissive or non-permissive.

Results: Of 78 donor recipient pairs, there were 13 HLA-DPB1 matches, 42 permissive mismatches, and 23 non-permissive mismatches (10 in the graft-vs-host [GvH] direction, 13 in the host-vs-graft [HvG] direction). In a univariate analysis, when matches and permissive mismatches were combined into a group and compared to non-permissive mismatch, there was no significant difference in overall survival (p=0.31), relapse (p=0.79), or neutrophil or platelet engraftment (p=0.23 and p=0.99, respectively). No significant difference was observed in acute graft-vs-host disease (aGVHD; p=0.25) or grade II-IV aGVHD (p=0.62) among the matched, permissive mismatched, and non-permissive mismatched groups. The permissive mismatched group showed an increase in chronic GVHD (cGVHD) over the matched and the non-permissive mismatched groups that neared significance (p=0.052).

In univariate analyses, for non-permissive mismatches, the GvH mismatch direction trended toward reduced survival (p=0.26), increased relapse (p=0.13), increased aGVHD (p=0.064), and increased cGVHD (p=0.22).

Conclusions: We did not identify any significant differences in survival, relapse, engraftment, or acute or chronic GVHD among the patients with HLA-DPB1 donor matches, permissive mismatches, and non-permissive mismatches, although our study was limited by small sample size. Further work from large databases is necessary to fully understand the impact on clinical outcomes of HLA-DPB1 mismatches.