patients were divided into group I, II,III. With a complete response, patients received the same mobilization regimen, EA (cytarabine 1.0g in IV, every 12 hours × 3 ~5days; etoposide 0.1~0.2g in IV, every 12 hours × 3~5 days) chemotherapy combined granulocyte-colony stimulating factor(G-CSF)5~10ug/kg/d. G-CSF starting after completion of chemotherapy 4 to 5 days when WBC down to the bottom until the end of thecollection. Apheresis was scheduled to start when the WBC count recovered ≥4.0 × 109/L or the CD34 cells ≥ 0.01% WBC of PB.After24~48h following high-dose conditioning regimens (mostly busulfan/cyclophosphamide) ,grafts were infused. The efficacy ofPBSC mobilization, hematopoietic reconstitution, survival rates were assessed for each AraC group.

Results: The median doses of CD34 cell in those three AraC groups were 4.7×106/Kg, 2.8×106/Kg, 2.2×106/Kg, respectively(P=0.006). In addition, patients collected ≥2.0×106/kg numbers of CD34 cells in groups I need the lowest leukapheresis, total bloodvolume processed, G-CSF total dose and days(P<0.05). A significantly greater proportion of good mobilization (≥2.0×106 CD34cells/kg with at most 3 leukapheresis procedures) in the group I (39/46, 84.8%) compared with the group II (13/22, 59.1%) and groupIII (10/19, 52.6%) ($\chi 2$=8.918, P=0.012). The sex, age, cytogenetic risk, the pior chemotherapy courses, the prior courses of the variouschemotherapeutic agent drugs except MD-AraC did not correlate with mobilization response. Multivariate analysis revealed thecourse of prior MD-AraC chemotherapy was an independent predictive factor for HSC mobilization[OR 0.627, 95% CI 0.421-0.935,P=0.022]. However, the MD-AraC chemotherapy has no effect on hematopoietic reconstitution and survival in AML patients treated with auto-HSCT(Figure1).

Figure 1. OS and RFS. A) Predicted 3-year OS was 72.3% for the group I, 82.9% for the group II, and 82.3% for the group III (P=0.803). B) Predicted 3-year RFS as 60.1% for the group I, 72.1% for the group II, and 64.8% for the group III (P=0.743).

Summary and Conclusions: Exposuring to the bone marrow toxic drugs is the major factor negatively effected mobilization, there mitoxantrone,fludarabine, lenalidomide, platinum, alkylating agent, carmustine, nucleoside analogue, melphalan were reported. As in previousstudies, prior exposure to MD-AraC also was an independent negative predictor for mobilization and without survival benefit. Theconventional chemotherapy not accurately presented a significant influence in the mobilization in AML. In preparation for Auto-HSCT, MD-AraC must be taken into account.

PB1879

AUTOLOGOUS STEM CELL TRANSPLANTATION UPFRONT IN THE TREATMENT OF PATIENTS WITH AGGRESSIVE B CELL LYMPHOMA: ANALYSIS OF PROGNOSTIC FACTOR FROM A SINGLE INSTITUTION IN JAPAN

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Background: The efficacy of autologous stem cell transplantation (auto-SCT) during the first remission in patients with aggressive B cell lymphoma remains to be elucidated. A previous large study found that auto-SCT improved progression free survival (PFS) in aggressive non-Hodgkin's lymphoma patients, but not overall survival (OS). (P.J.Stiff et al, NEJM 2013). Then we need to identify patients who will gain the maximum benefit from auto-SCT in the upfront setting. Also, it is important to establish new prognostic factors to identify the eligible patients. We focused on Glasgow Prognostic Score (GPS) which has been proposed as a powerful prognostic tool for patients with various types of malignant tumors as well as hematologic malignancy. In this study, we evaluated the efficacy regarding auto-SCT for high risk aggressive B cell lymphoma and identified the prognostic factors including GPS for auto-SCT.

Aims: To evaluate significance of auto-SCT for high risk aggressive B cell lymphoma and identify its prognostic factors.

Methods: We retrospectively analyzed 39 patients with high risk aggressive B cell lymphoma who underwent auto-SCT between 2006 and 2012 in Kansai Medical University Hospital. High risk patients were defined as high-intermediate and high risk groups stratified by international prognostic index (IPI). 17 patients received auto-SCT as upfront and 22 patients did as second-line therapy. All patients were treated by rituximab as primary therapy and evaluated by PET-CT scan. The primary endpoints were 3y-OS and PFS.

Results: 3y-OS and 3y-PFS of all patients were 66.7% and 71.8%, respectively. 3y-OS and PFS in upfront group were 94.1% (p=*0.001*) and 88.1% (p=*0.09*). In second-line group, they were 45.5% (p=*0.001*) and 59.1% (p=*0.009*). In multivariate analysis, age (60y/o<) (HR 3.6, p=*0.047*), disease status at auto-SCT (HR 35.3 p=*0.006*), and GPS (HR 8.8, p=*0.047*) were significant predictors for worse 3y-OS and PFS, whereas bone marrow involvement, IPI, and number of prior chemotherapies were not.

Summary and Conclusions: Upfront auto-SCT for high risk aggressive B cell lymphoma appears to be beneficial. Age, disease status, and GPS can predict outcome for auto-SCT. It may be useful to identify the eligible patients using these prognostic factors in undergoing auto-SCT in Rituximab-era.

PB1880

IN SITU INJECTION OF CIK CELLS FOR EXTRAMEDULLARY RELAPSE OF LEUKEMIA AFTER TRANSPLANTATION: A CASE REPORT AND REVIEW OF THE LITERATURE

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Background: Extramedullary leukemia relapse after allogeneic hematopoietic stem cell transplantation (HSCT) remains a formidable obstacle. Most of the patients suffered poor prognosis and eventually developed into bone marrow relapse. Current treatments including reducing and/or withdrawal of immunosuppressants, radiotherapy and chemotherapy did not permit any guarantee of promising effect.

Aims: We here report a patient with acute lymphoblastic leukemia (ALL) who had extramedullary relapse in manner of leukemia cutis 76 days after allogeneic HSCT.

Methods: We gave him chemotherapy with cytarabine 2.0 Q12h, d1-d3; idarubicin 10mg / day, d4-d5 from +85d to +89d. After chemotherapy the subcutaneous masses had transient narrowing but increased in two weeks after withdrawing chemotherapy (+103 d). The needle aspiration biopsy found immature leukemia cells. Then each mass had injection of cytarabine (20mg), but there was no significant improvement, subcutaneous masses still gradually increased. No leukemia cells was observed at 123 days in peripheral blood smears so peripheral blood mononuclear cells began to be collected for cytokine-induced killer cells (CIK) amplification *in vitro* after the informed consent was obtained. On day 137 after HSCT, we gave *in situ* subcutaneous injection into each mass with CIK cells (1ml, cell number was 1.56×10^5 / site).

Results: 4 days after CIK injection, the masses were flattening and gradually disappeared. During treatment the patient was well tolerated and did not re-appear the performance of extramedullary relapse afterward. This is the first case of giving adoptive cell therapy with CIK cells in the way of *in situ* injection.

Summary and Conclusions: Our case preliminarily demonstrates that *in situ* injection of CIK cells provides a new treatment option to therapy of extramedullary relapse after allogeneic HSCT and help to overcome the problem of inadequate targeting of extramedullary lesion during homing process of adoptive immune cells *in vivo*.

PB1881

A COMPARATIVE ANALYSIS OF EFFECTIVENESS OF TWO GRANULOCYTE COLONY-STIMULATING FACTORS (GCSF), AN ORIGINAL DRUG NEUPOGEN AND A BIOSIMILAR NIVESTIM, IN MOBILISATION OF PERIPHERAL BLOOD STEM CELLS

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Background: Original biological drug Neupogen (Amgen, Roche) was used for peripheral blood stem cells mobilisation in Clinical University Hospital Centre Zagreb until April 2012. When the drug stopped being available, biosimilar Nivestim (Hospira) was used for the same purpose.

Aims: We evaluated the effectiveness of two granulocyte colony-stimulating factors in mobilisation of peripheral blood stem cells in patients treated for hematological malignancies.

Methods: A retrospective analysis was performed in patients stratified

according to GCSF used for mobilisation (Neupogen *vs* Nivestim) and the hematological malignancy they were treated for (Acute myeloid leukemia, Multiple myeloma, non-Hodgkin`s lymphoma, Hodgkin`s lymphoma). 186 patients who were administered 10 mcg/kg of GCSF were analysed. The following parameters of stem cell mobilisation were surveyed: number of days GCSF was administered, total number of CD34 positive cells per kilogram collected, total number of colony forming units of the granulocyte macrophage order per kilogram collected. A matched pairs analysis was performed on a subset of patients treated for multiple myeloma. Mann-Whitney-U test was used for statistical analysis.

Results: When analysing the subset of patients treated for acute myeloid leukemia , the median number of days GCSF was administered before mobilisation was 11.5 for the Neupogen group, and 14 for the Nivestim group (p 0.892). Median value of CD34 positive cells collected was 7.6x10E6/kilogram for the Neupogen group and 7.0x10E6/kilogram for the Nivestim group (p 0.854). Median value of total number of colony forming units of the granulocyte macrophage order per kilogram collected (CFU-GM) was 58x10E4/kilogram for Neupogen group and 60x10E4/kilogram for Nivestim group (p 0.574). When analysing patient treated for multiple myeloma, we found that the median number of days GCSF was administered before mobilisation was 7 for the Neupogen group, and 8 for the Nivestim group (p 0.064). Median value of CD34 positive cells collected was 11.6x10E6/kilogram for the Neupogen group and 11.9x10E6/kilogram for the Nivestim group (p 0.459). Median value of total number of colony forming units of the granulocyte macrophage order per kilogram collected (CFU-GM) was 70x10E4/kilogram for Neupogen group and 74x10E4/kilogram for Nivestim group (p 0.574). When a matched pairs analysis was performed on this subset of patients no statistically significant difference was observed in the aforementioned categories. When analysing the subset of patients treated for non-Hodgkin's lymphoma, the median number of days GCSF was administered before mobilisation was 10 for both groups (p 0.750). Median value of total CD34 positive cells collected was 8.15x10E6/kilogram for the Neupogen group and 9.02x10E6/kilogram for the Nivestim group (p 0.728). When analysing the subset of patients treated for Hodgkin`s lymphoma, the median number of days GCSF was administered before mobilisation was 9 for both groups (p 0.755). Median value of CD34 positive cells collected was 10.9x10E6/kilogram for the Neupogen group and 13.37x10E6/kilogram for the Nivestim group (p 0.854). Median value of total number of colony forming units of the granulocyte macrophage order per kilogram collected (CFU-GM) was 58x10E4/kilogram for Neupogen group and 33x10E4/kilogram for Nivestim group (p 0.574).

Summary and Conclusions: Since no statistically significant difference was observed in the tested parameters we conclude that biosimilar Nivestim was not inferior when compared to the original biological drug Neupogen in peripheral blood stem cell mobilisation.

PB1882

STEM CELL MOBILIZATION IN ELDERLY MULTIPLE MYELOMA PATIENTS: SINGLE CENTER EXPERIENCE

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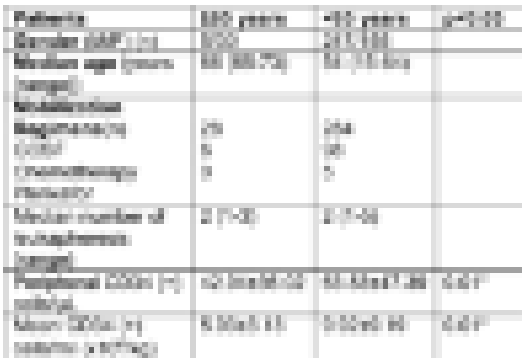
Background: Multiple myeloma (MM) has considerable impact in the older patient population. As the median age at diagnosis is 70 years for MM, more than half of newly diagnosed cases of these malignancies were made in patients' ≥60 years of age.

Aims: We retrospectively compared myeloma patients below the age of 65 with patients above 65 years of age, analyzing CD34 mobilization into peripheral blood and the number of leukapheresis needed to collect at least one single stem cell graft.

Methods: In our clinic; between 1993 and 2013, a total of 437 patients with MM who received autologous stem cell transplantation enrolled this study. Our thereshold for leukapheresis was 10 CD34 positive cells/μL whole blood. Only in patients achieving >10 CD34 positive cells/μL blood was a stem cell collection initiated. Thirty five of 437 patients were above 65 years of age (median age 66, range 65-73) and 402 patients were below the age of 65 (median age 54, range 15-64). Patients' characteristics are summarized in Table 1. Mobilization regimens for the younger patient population were cyclophosphamide based (n: 95), etoposide based (n: 3), G-CSF only (n: 284) and plerixafor+ G-CSF (n: 5). Mobilization in the older population was with cyclophosphamide based (n: 6) and G-CSF only (n: 28).

Results: There were no significant statistical differences in time from diagnosis to mobilization, number of prior therapies, disease status, and type and frequency of comorbidities between both patient groups. The number of CD34-positive circulating cells before scheduled leukapheresis was mean 62.11 cells/μL (median 48 cells/ μL, range 10-197; SEM±46.875) in all patients. The results are summarized in Table 1.

Table 1.



Summary and Conclusions: Our data support the observation that after a standard mobilization regimen with anti-myeloma chemotherapy and once-daily growth factor support, patients above 65 years of age show an impaired CD34 mobilization into peripheral blood compared to a younger population. This can be overcome by an increased number of leukaphereses.

PB1883

ASSOCIATION OF GRAFT-VERSUS-HOST-DISEASE SEVERITY WITH LEUKEMIA RELAPSE AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION IN CHILDREN

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Background: The graft-*versus*-leukemia (GVL) effect plays a major role in reducing the risk of relapse after allogeneic hematopoietic stem cell transplantation (HSCT). Because the GVL effect is extremely similar to that underlying graft-*versus*-host-disease (GVHD), severity of GVHD is believed to correlate with the GVL effect. GVHD may be associated with a reduced incidence of leukemic relapse; however, it is the leading cause of treatment deaths and increases treatment-related mortality.

Aims: The aim of this study was to investigate whether clinical outcomes of allogeneic HSCT in children are affected by GVHD severity.

Methods: We retrospectively analyzed 191 pediatric patients who received allogeneic HSCT at a single institution. All 191 patients received 217 allogeneic HSCTs from January 1, 1985, to March 31, 2013; these included 116 patients with acute lymphoblastic leukemia (ALL) and 75 patients with acute myeloid leukemia (AML) or myelodysplastic syndrome (MDS). Acute GVHD (aGVHD) was evaluated according to the International Bone Marrow Transplant Registry grading system and chronic GVHD (cGVHD) was categorized as either limited or extensive.

Results: In a comparison of grade 0-I *versus* grade II-IV aGVHD, overall survival (53.4% *vs.* 51.9%, p=0.958), leukemia-free survival (50.4% *vs.* 42.7%, p=0.586), cumulative incidence of relapse (41.2% *vs.* 42.6%, p=0.395), and treatment-related mortality (8.4% *vs.* 14.7%, p=0.856) did not significantly differ. For the absence *versus* the development of cGVHD, overall survival (52.5% *vs.* 56.5%, p=0.401), leukemia-free survival (47.3 *vs.* 51.6%. p=0.418), cumulative incidence of relapse (45.2% *vs.* 31.7%, p=0.137), and treatment-related mortality (7.5% *vs.* 16.7%, p=0.136) did not significantly differ. The group of patients who developed cGVHD had a tendency of lower cumulative incidence of relapse and higher treatment-related mortality than those who did not develop cGVHD. Compared with the entire cohort, patients with ALL or AML had similar survival probabilities.

Summary and Conclusions: The severity of aGVHD and cGVHD does not affect the clinical outcome of allogeneic HSCT in children. However, the clinical outcome of patients who develop cGVHD may improve as treatments for cGVHD advance and decrease treatment-related mortality.

PB1884

THE ASSESMENT OF THE STEM CELL MOBILIZATION IN LYMPHOMA PATIENTS: A SINGLE CENTER EXPERIENCE

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Background: High-dose chemotherapy in conjunction with auto-SCT is widely recognized as the preferred modality of treatment for patients with relapsed or refractory Hodgkin disease or non-Hodgkin lymphoma at the time of chemo-