interested in younger versus older patients(pts) for any difference in disease characteristics and clinical outcome in the era of newer agents.

Patients: We retrospectively analyzed 122 consecutive pts (M77:F55) who underwent ASCT for multiple myeloma between February, 2005 and July 2010, after newer agents were introduced. Median age was 58 years (38-76). The median length of follow-up was 1.1 year (33-1833days) after the initial transplant date.

Patient characteristics: High risk cytogenetics was seen in 40% (n = 29) of patients younger than 60 years of age compared to 28% (n = 14) of the pts in older group. Either deletion 13 or 17 deletion was similar in both groups 20% (n = 15) in younger and 22% (n = 11) in older group. Trisomy 11 was more commonly seen in the younger patients 11% (n = 8) vs. 0%. Prior MGUS or smoldering myeloma was more common in older pts (16%; n = 8) vs. (7%; n = 5). Plasmacytomas (PCM) as presenting symptom was more common 24% (n = 17) in younger patients compared to 16% (n = 8) older pts.

Table 1. Patient characteristics of multiple myeloma patients younger and older than 60 years of age

Age in years	<60 (n=72)	>60 (n=50)
M:F	44 : 28	29 : 21
Disease prior to myeloma		
Light chain disease	0 (0%)	2 (4%)
MGUS/smoldering MM	5 (7%)	8(16%)
Plasmacytoma	17 (24%)	8 (16%)
Amyloid	1 (1%)	3 (6%)
Plasma cell leukemia	0 (0%)	1 (2%)
De novo myeloma	49 (68%)	28 (56%)
WHO/ISS		
albumin	3.6 (2.1-4.6)	3.6 (2.0-4.6)
Beta2 microglobulin	2.7 (1.4-34)	3.6 (1.3-15)
I	32 (44%)	12 (24%)
II	14 (19%)	22 (44%)
III	24 (33%)	12 (24%)
Not calculated	2(3%)	4 (8%)
Durie-Salmon staging		
I	9 (12%)	9 (18%)
II	14 (19%)	17 (34%)
III	49 (68%)	24 (48%)
Cytogenetic abnormalities		
13 del/17 del	15 (20%)	11 (22%)
Trisomy 11	8 (11%)	0 (0%)
T(11:14)	1 (1%)	3 (6%)
complex	5 (7%)	1 (2%)
aneuploidy	0 (0%)	1 (2%)
Pretransplant treatments		
VAD/DVD	9 (12%)	9 (18%)
Melphalan	4 (7%)	4 (8%)
Thalidomide	18 (25%)	16 (32%)
Lenalidomide	14 (19%)	9 (18%)
Bortezomib	17 (24%)	12 (24%)
Post transplant treatments		
Thalidomide	2 (3%)	2 (4%)
Lenalidomide	37 (51%)	29 (58%)
No maintenance	27 (38%)	18 (36%)
Second transplants	2 (3%)	1 (2%)

Methods: Various pretransplant characteristics including cytogenetics and free light chain ratios were evaluated for remission status and impact on progression.

Results: Majority of younger pts (44%; n = 32) had stage I disease by ISS staging compared to older pts with stage II disease (44%; n = 22). By Durie-Salmon staging majority had stage III disease; 68% of younger (n = 49) compared to 48% of older pts (n = 24). The 3 year overall survival was 71% for pts over 50 years of age compared to 40.2% for pts younger than 50 years of age (p = 0.065).Median survival was 927 days for patients younger than 50 years of age, but not reached for pts older than 50 years. Three patterns of relapses were seen: Bone marrow (BM) relapse; free light chains (FLC); plasmacytoma only recurrence.None of the pts with FLC only relapse died of relapse.

Conclusion: The younger patients have more aggressive clinical presentation compared to older myeloma patients. Pre and post transplant strategies need to be better defined to improve outcome of younger myeloma patients with aggressive clinical course.

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COMBINED EPIGENETIC AND IMMUNE-BASED THERAPIES FOR RELAPSED HODGKIN'S LYMPHOMA POST HEMATOPOIETIC STEM CELL TRANSPLANT

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Hematopoietic stem cell transplant (HSCT) remains the primary therapy for Hodgkin's Lymphoma (HL) patients who relapse following standard therapies. Those who relapse have limited options for long-term cure. Two approaches have recently shown promise: T cell therapy, and therapy with epigenetic-modifying drugs. As usually seen in cancer, a multimodality approach may work best: we thus hypothesize that a combined immune–based and epigenetic therapy, targeting our antigen of choice MAGEA4, will be an effective approach for treating relapsed HL post HSCT.

Success in T cell therapy targeting Epstein Barr virus (EBV) proteins in lymphoma is limited because most are EBV negative. MAGEA4 is expressed in EBV-negative HL, seen only in tumor & immune-privileged germ cells, and immunogenic. We also observed that we can increase MAGE expression by epigenetic modification of the tumor, supporting our hypothesis.

To verify whether MAGE T cells can be expanded from different donors, cells from HL patients (n = 4), healthy donors (n = 15) and cord blood (n = 4) were stimulated weekly with autologous DCs pulsed with MAGEA4 peptides. We generated a mixed population of activated T cells with specificity against MAGE from all donor types. These cells recognized different MAGE epitopes, and evaluable T cells demonstrated specific killing against autologous targets and HLA-matched HL cell lines.

To explore the effect of combining MAGE T cells with the epigenetic drug decitabine, we first looked at the effects of adding the drug to our T cells – to ensure that the drug does not negatively affect them. We saw no overt effects on or changes in phenotype or specificity when MAGEA4 T cells were cultured with decitabine. We then confirmed that treatment of tumors with decitabine in vitro increased MAGE expression using qPCR.

Lastly, we tested our prediction that increases in the frequency of MAGEA4 specific T cells would be seen in HL patients receiving decitabine as therapy. We saw increased MAGEA4 specific T cells in HL patients following treatment (likely reflecting increased antigens in vivo) – manifested as an increase in the epitope repertoire and in the number of IFNγ-secreting cells. We were unable to expand MAGE T cells in all HL patients treated with decitabine, however, highlighting the need for adoptive transfer of these cells.

These suggest that MAGEA4-specific T cell immunotherapy, along with epigenetic therapy, is a practical approach for treatment of relapsed HL post-HSCT.

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AUTOLOGOUS STEM CELL TRANSPLANTATION (ASCT) FOR MULTIPLE MYELOMA (MM) IN HIV POSITIVE PATIENTS (PTS) IN THE HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART) ERA

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Introduction: There is little information on the outcome of HIV+ pts with MM undergoing myeloablative chemotherapy with ASCT
Patients and Methods: 3 male HIV + pts with MM underwent ASCT between June 2005 and December 2009. Median age of 46 years (43-66 years). All received multiagent chemotherapy including bortezomib, dexamethasone, thalidomide, cisplatin, adriamycin, cyclosphosphamise, etoposide (VDT-PACE) and granulocyte colony stimulating factor (GCSF) for mobilization of hemopoeitic peripheral stem cells (HPC). HAART was held during VDT-PACE and HPC. All collected adequate CD 34+ cells/kg (median $25.4x10^6$ cells/kg ($17.4\text{-}31.9\ x10^6$ cells/kg)) for tandem transplant. HAART was resumed during myeloablative chemotherapy and ASCT. Demographics, HIV viral load (VL), myeloma and HIV outcomes were reviewed.
Results: Median absolute CD4 cell count prior to ASCT was 64 cells/μL (43-264 cells) and median HIV viral load (VL) was 2070 copies/mL (153-9550 copies/mL). Conditioning regimens were melphalan 200 mg/m2 (2 pts) and carmustine, etoposide, adriamycin, melphalan (BEAM, 1 pt). Median viable CD34+ cells/kg infused was 2.96×10^6/kg (range $2.58\text{-}3.26 \times 10^6$/kg). Median days to neutrophil and platelet engraftment were respectively 11 (range 7-14) and 18 (range 16-19) days. Treatment-related complications included colitis (3 pts, *C. difficile* in 1), gram negative sepsis (1 pt) and pulmonary aspergillosis (1 pt). Following ASCT, all pts responded, with 2 achieving complete remission which was maintained for 1 year (1 pt) and 2 years (1 pt). One pt died 2 months after transplant after refusing more treatment (cause of death unclear). The median CD4 count 1-3 months after transplantation was 94 cells/uL (range 19-105) and median HIV VL was 1510 copies/mL (range 687-9270). The HIV VL was undetectable at 1 year in 2 pts.
Conclusion: Myeloablative chemotherapy with ASCT can be safely applied to HIV + pts with MM receiving HAART with good outcome at 1-2 years after ASCT.

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AUTOLOGOUS STEM CELL TRANSPLANT (SCT) IN PATIENTS WITH MULTIPLE MYELOMA (MM) OVER THE AGE OF 65 YEARS IS FEASIBLE AND SAFE

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Background: Autologous SCT improves response rates and survival in all newly diagnosed transplant eligible patients with MM. Patients older than 65 years of age are frequently considered ineligible for this procedure.
Materials and Methods: Retrospective analysis was performed on all patients with MM over the age of 65 years who underwent autologous SCT at UMass Memorial medical center since January 2003.
Results: 33 autologous SCT were performed on 27 patients with MM over the age of 65 years. Thirteen (39%) SCT were performed in patients older than 70 years. The median age at SCT was 68 years (range 65-77).24 SCT were performed in males and 10 SCT were performed in females.Myeloma subtype was IgG κ 14 (52%); IgA κ 6 (22%); IgG λ 4 (15%) and light chain myeloma in 3 (11%). Median time from diagnosis to transplant was 11 months (range 4-143). In 13(48%) instances patients had more ≥ 3 therapies prior to their SCT. 10(29%) of the SCT were 2nd transplants and there was one instance of 3rd SCT. Preparative regimen was melphalan 100-200mg/m^2.Median time for neutrophil recovery was 11 days (range 9-12) and platelet recovery was 18 days (range 10-26). No patient died within 100 days post transplant.1 year mortality was 10% (3/31). The survival of patients ≥ 70 years was similar to those ≤ 70 years. 7/15 (46%) of the patients transplanted beyond 5 years are still alive.
Conclusion: Autologous SCT is feasible and a safe treatment modality for MM patients older than 65 years of age. This treatment modality needs to be evaluated further in prospective randomized clinical trials.

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CYTOGENETICS AND FLUORESCENCE IN SITU HYBRIDIZATION (FISH) CHANGES BEFORE AND AFTER THERAPY AND TRANSPLANT IN PATIENTS WITH MULTIPLE MYELOMA

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Background: Multiple Myeloma (MM) has a very heterogeneous prognosis. Many studies suggested that specific chromosomal changes are of prognostic significance in patients with MM. Poor risk include t(4;14), t(14;16),t(14;20), deletion p53, deletion 13 and hypodiploidy. Changes of genetics during course of treatment and outcome are not well studied. 132 cases of Multiple Myeloma transplants were retrospectively reviewed from January 1st, 2000 to August 1st, 2010. We looked at cytogenetics and fluorescence in situ hybridization (FISH) before starting treatment, before and after transplant.
Results: Out of 132 patients, 84.1% had Auto stem cell transplant and 24 (15.9%) had Allo stem cell transplant. Mean age at diagnosis was 54.6 (24-76). Patients with stage I-II were 28.2%, the rest had stage III. 35 patients had monosomy or deletions of chromosome 13 (ch13) detected by FISH at diagnosis or any point during their treatment. Of these, 11 patients had ch13 abnormality detected by FISH during the course of treatment not at time of diagnosis. 3 (2.3%) patients had abnormalities of ch13 detected by cytogenetics. 11 patients had p53 deletion. It was detected in 8 patients before transplant and was still detectable in 3 out of those 8 patients during therapy and transplant. Another 3 patient had p53 deletion detected only after transplant and was not detected before. 11 patients had complex genetics at around time of diagnosis and 25 patients had complex genetics detected just before and after time of transplant. One patient had t(4;14). By time of analysis, there were 57 (43.2%) death and 75 (56.8%) patients who were still alive. 80 (60.6%) patients had a relapse at one point. Median time to relapse (days) was 945 (251-9848). After dividing patients with high risk genetics at any point during there treatment before or after transplant .and standard risk, which includes everybody else, we found a significant association between risk and death ($p = 0.001$).
Conclusion: In this small group of 132 patients with MM who had stem cell transplant in the last ten years from a single center we have some data that may suggest high risk genetics detected at any point during therapy may affect prognosis. This supports the need to monitor genetics at diagnosis and during therapy. Since this is a small group, further studies involving larger cohort of patients need to be designed to confirm these results and study the effect of changes of genetics during treatment of MM.

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SKELETAL CT SCAN IS MORE SENSITIVE THAN SKELETAL SURVEY DURING THE PRE-TRANSPLANT EVALUATION FOR MULTIPLE MYELOMA PATIENTS BUT HAS NO PROGNOSTIC SIGNIFICANCE

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Skeletal survey continues to be the gold standard radiologic method for the detection of lytic lesions in multiple myeloma (MM) patients. CT scans, MRI or PET scans have been used to evaluate specific symptoms. In our institution, we have used both skeletal non-contrast CT scan and skeletal survey to evaluate for bone disease during the pre-transplant evaluation of MM patients. Due to lack of billing code for such test, the charges have been generated under the code for CT scan of the abdomen or the spine. Our aim was to assess the differences between the two modes of x-rays and to evaluate the impact on progression –free (PFS) and overall survival (OS) after stem cell transplant. We retrospectively reviewed the medical records of patients from our transplant registry that underwent stem cell transplant (SCT) between January 2005 and December 2008. Total of 154 patients were reviewed and 70 patients had the two studies done during the pre-transplant evaluation. The following data was collected: age, gender, stage of disease, albumin, β2-microglobulin, cytogenetics and FISH results, time to relapse, and time to death. Patients were divided into two groups for comparison: those who had differences between CT scan and skeletal survey findings versus those who did not. The results show that CT scan had more findings than the skeletal survey in 60% of the patients. These