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Short Communication

Autologous Stem Cell Transplantation in Elderly Patients is Safe and is not associated with a Higher Frequency of Readmission Compared to Younger Patients. A Single Center Experience

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Background

High dose chemotherapy and Autologous Stem Cell Transplantation (ASCT) is an effective treatment strategy for many adult Patients (pts) with Non-Hodgkin Lymphoma (NHL) and Multiple Myeloma (MM) and it is increasingly performed also in selected patients older than 65 years.

Aims

Data on toxicity and complications rate of ASCT in elderly patients are scarce. Herein we evaluated complications and re-hospitalization rate within 3 months in patients older than 65 yrs undergoing ASCT.

Methods

We retrospectively analyzed 231 consecutive patients who underwent ASCT at our Institution between January 2016 and December 2017, focusing on the group of pts aged > 65 yrs. Their characteristics, clinical course and outcome were analysed and compared with younger pts.

Results

Seventy-two of 231 (31%) ASCT pts were > 65 yrs. Diagnosis was MM in 52 (72%) and NHL in 20 pts (28%) respectively. Median age was 69 (range 65-76). Patients' comorbidities or significant laboratory abnormalities are summarized in (Table 1). Based on clinical judgement, conditioning regimen dose intensity was reduced in 10 pts (14%). In 12% (6/52) of MM pts melphalan dose was reduced to 140 mg/m^2 (4) or 100 mg/m^2 (2). FEAM dose was reduced at 75% in 4 NHL pts (20%) [1,2]. Pts achieved hematology recovery after a median of 10 days (6-13) and were discharged after 13 days (9-29). Infectious complications were the most frequent adverse event during the aplastic phase [3-5].

Fever of Unknown Origin (FUO) developed in 31 pts (43%), sepsis in 16 (22%) and pneumonia in 10 (14%). Among non-infectious complications, WHO grade >III mucositis occurred in 12 pts (17%), neutropenic enteritis in 4 (5.5%) and cardiac arrhythmia (atrial fibrillation or TPSV) in 3 (4%).

Table 1:

	n (72)	%
Hypertension	26	36
Diabetes mellitus	9	12.5
Previous thrombotic events (TIA, AMI, PE)	5	7
Thyroids dysfunction	4	5
Sleep apnea syndrome	3	4
Lupus anticoagulant	2	2.7
Chronic renal failure	2	2.7
Cardiac arrhythmia	5	7
Neurological disease	3	4.1

TIA: Transient Ischemic Attack; AMI: Acute Myocardial Infarction; PE: Pulmonary Embolism

Table 2:

	Not re admitted n 56 (78%)	Re-admitted n 16 (72%)	p-value
Median age (years)	69 (66-75)	67 (65-75)	
Disease			
MM	41(73%)	10(62.5%)	0.53
LNH	15(27%)	6(37.5%)	
Comorbidity			
<2	30(53.5%)	8(50%)	0.46
>=2	16(28.5%)	3(19%)	
>=3	10(17.8%)	5(31%)	
Aplasia adverse events			
FUO	21(37.5%)	10(62.5%)	0.09
Mucositis {grade III WHO}	12(21%)	7(43.7%)	0.1
Sepsis	13(23%)	3(18.7%)	0.9
Pneumonia	7(12.5)	3(18.7%)	0.68
Neutropenic enteritis	1(1.7%)	3(18.7%)	**0.03**
FA/TPSV	3(5%)	2(12.5%)	0.3
Time to neutrophills recovery (N>500) (days; range)	10 (6-13)	10 (9-13)	
Time to discharge from ASCT (days; range)	13(9-29)	13(10-24)	

Readmission to the Hematology Unit within 3 months from ASCT occurred after a median of 32 days (14-120 [s2] days) in 16 of 72 pts (22%) [6]. Most of the re-admissions were due to FUO (37.5%) or infections (sepsis in 12.5%, pneumonia in 19%, diarrhea in 12.5%, Human Respiratory Syncytial Virus infection in 6%). Other causes included: hyporexia/vomiting, respiratory distress, disease relapse, acute cholecystitis, appendicitis and unrelated neoplasia. Table 2 compares the characteristics of elderly pts needing readmission or not after ASCT. The risk of being re-admitted did not vary according

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to age, type of disease, time to neutrophil recovery, time to discharge or number of comorbidities at ASCT, whereas the development of neutropenic enteritis (p 0.05; HR 3.84, 0.98-15.06) or WHO grade III mucositis (p 0.04; HR 2.79, 1.06-7.37) during ASCT were significantly associated with subsequent re-admission.

The re-hospitalization rate after ASCT of pts aged <65 was 18% (29/159), not significantly different from elderly pts. Moreover, no differences were found in time to re-admission (median 30 *vs.* 32 days), and in the causes of re-hospitalization [FUO/sepsis (45% *vs.* 50%), diarrhea (17 *vs.* 12.5%), pneumonia (10% *vs.* 19%), disease progression (21% *vs.* 6%, p: 0.39)] in younger *vs.* elderly pts, respectively. No transplant-related death was observed in pts over 65 yrs, while 1 younger pts died of within 3 months from ASCT.

Conclusion

ASCT performed in pts older than 65 yrs shows a low rate of short-term complications without unexpected adverse events. The rate of post-ASCT readmission is similar to younger pts and its risk is higher in pts developing severe mucositis or neutropenic enteritis during ASCT.

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