AUTOLOGOUS STEM CELL TRANSPLANTATION (ASCT) IN MULTIPLE MYELOMA : A RETROSPECTIVE SINGLE-CENTRE ANALYSIS

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BACKGROUND

Multiple Myeloma (MM) is the 3rd commonest hematological malignancy. Induction with a triplet regimen followed by autologous stem cell transplantation (ASCT) has been the standard therapy for young patients (<65 years).

OBJECTIVE

We aim to evaluate long term outcome and survival for MM patients who underwent ASCT in Hospital Pulau Pinang.

MATERIAL & METHOD

We included a 13 years cohort of patients transplanted from 1st August 2008 to 31st July 2020. The data were analyzed using SPSS version 23.0. The variables assessed include demographics, MM subtypes, remission status pre-transplant and maintenance therapy post-transplant.

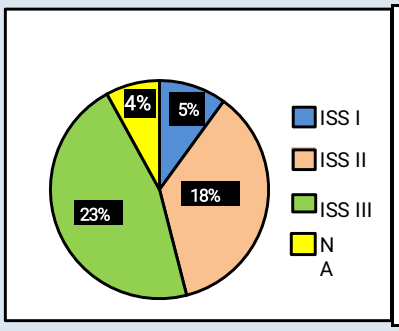

Figure 1: Percentage of patients at presentation according to ISS risk

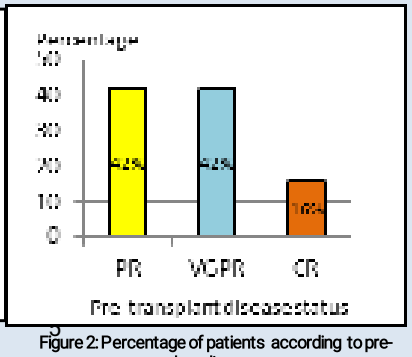

Figure 2: Percentage of patients according to pre-transplant disease status

Characteristics (n=50)	n (%)
Myeloma subtypes	
IgG	43 (86)
IgA	7 (14)
Light chain subtypes	
Kappa	38 (76)
Lambda	12 (24)
International Staging System	
Stage I	5 (10)
Stage II	18 (36)
Stage III	23 (46)
Not available	4 (8)
Disease status pre-transplant	
PR	21 (42)
VGPR	21 (42)
CR	8 (16)
Maintenance therapy post-transplant	
Thalidomide	25 (50)
Lenalidomide	5 (10)
Bortezomib	1 (2)
None	19 (38)
Disease relapse post-transplant	
Yes	36 (72)
No	14 (28)

Table 1: Baseline clinical characteristics

Characteristics	PFS Crude HR (95% CI)	p value	OS Crude HR (95% CI)	p value
Gender				
Female	1.0		1.0	
Male	1.69 (0.87-3.29)	0.119	1.33 (0.56-3.17)	0.525
Age group				
<50 years	1.0		1.0	
≥50 years	1.10 (0.55-2.19)	0.795	1.69 (0.62-4.64)	0.307
International Staging System				
Stage 1 and Stage 2	1.0	0.154	1.0	0.006
Stage 3	1.66 (0.83-3.33)		4.83 (1.58-14.80)	
Pre-transplant disease status				
PR	1.0	0.617	1.0	0.221
VGPR	1.12 (0.56-2.26)	0.749	2.43(0.89-6.65)	0.083
CR	0.68 (0.25-1.87)	0.451	1.67(0.47-5.95)	0.429
Conditioning regimen				
Melphalan 140	1.0		1.0	
Melphalan 200	0.95 (0.46-1.99)	0.897	1.05 (0.41-2.70)	0.923
Myeloma subtypes				
Ig A	1.0		1.0	
Ig G	1.76 (0.71-4.32)	0.22	1.13 (0.26-5.00)	0.868
Maintenance therapy post-transplant				
No	1.0		1.0	
Yes	1.49 (0.73-3.03)	0.275	0.83 (0.36-1.93)	0.657

Table 2: Prognostic factor for progression free survival (PFS) and overall survival (OS) using simple Cox regression

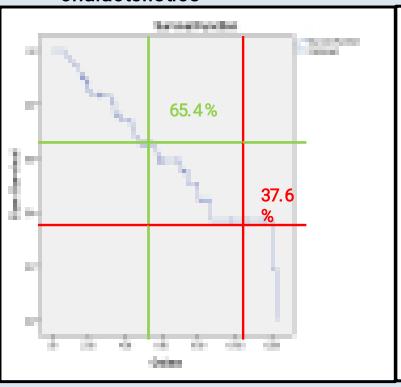

Figure 3: 5-years and 10-years overall survival: 65.4% and 37.6%

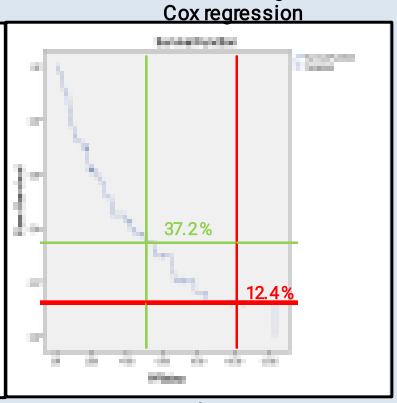

Figure 4: 5-years and 10-years progression survival: 37.2% and 12.4%

RESULTS

A total of 50 patients (22 males, 28 females) were evaluated. The median age at transplant was 54.5 years (range 31.4 - 64.9 years). There were 23 Malay (46 %), 19 Chinese (38 %) and 8 Indian (16 %). 74% had IgG kappa subtype. 46% presented with ISS III, 36% ISS II and 10% ISS I. 58% of patients were transplanted with at least a very good partial response (VGPR) compared with 42% with partial response (PR). 62% of patients received maintenance post-ASCT. The median follow up was 55.3 months (range: 8.6 – 147.8 months). The 5 years and 10 years overall survival (OS) were 65.4% and 37.6 % respectively whilst the 5 years and 10 years progression free survival (PFS) were 37.2% and 12.4% respectively. There was no transplant related mortality. Adjusted for gender, subtypes and remission status, International Staging System (ISS) III (aHR 5.71; 95% CI 1.69-19.25) and older age during transplant (aHR 1.09; 95% CI 1.01-1.18) were independent risk factors for increased mortality. Similarly, both ISS III (aHR 2.54; 95% CI 1.04-6.22) and older age during transplant (aHR 1.09; 95% CI 1.01-1.17) were also significant predictors for post-ASCT relapse.

CONCLUSION

ASCT improves survival in patients with multiple myeloma and is safe in patients below 65 years. ISS III and older age at transplant are independent risk factor of OS and PFS.

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