Multiple Myeloma: Allogeneic or Autologous Hematopoietic Stem Cell Transplantation?

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Introduction:

Despite remarkable progress in survival with the availability of novel agents, a majority of patients with multiple myeloma (MM) relapse and the curability of MM remains limited.Autologous stem cells transplantation (auto-HCT) is an accepted method in multiple myeloma (MM) patients, but usually it is not curative. The issue of allogeneic hematopoietic stem cells transplantation (allo-HCT) is challenging yet for myeloma. We investigated allo-HCT in MM and compared with auto-HCT.

Patients and Methods:

In this retrospective study, we recruited 437 patients from January 2011 to January 2016 285 (82.13%) patients in autologous group and 62 (17.87%) in allogeneic group.
Both group of our patients,underwent stem cells transplantation after achieving a complete respons or partial respons after first line induction therapy or salvage.
We performed allogeneic HCT by using peripheral blood stem cells in our center for patients who were relatively young (less than 55 years old) with good performance,who had matched sibling donor and accepted to undergo allogeneic HCT. The conditioning regimens in autologous groups was only Melphalan 200 mg/m2 and for allogeneic group was Fludarabine 30 mg/m2 plus Melphalan 140mg/m2 in 5 days. GVHD prophylaxis consisted of Methotrexate and Cyclosporine. Then the outcomes were compared between two groups using log-rank and Gray tests and cox proportional hazard regression.

Results:

The median follow-up in the autologous and allogeneic group was **40.57± 1.71** months.
Five years disease-free survival of auto-HCT was **39.85% (SD: 4.48%)** and **64.30%(SD : 6.65%)** for allo-HCT patients (P-value = 0.05).
Five years overall survival of auto-HCT was **73.95%** (SD: 3.49%) and **74.87%(**SD: 6.37%) for allo-HCT patients (P-value = **0.93)** showing no significant statistical difference between two groups.

Mortality rate was **18.60 %** for auto-HCT and for allo-HCT was **20.97**%. The most common cause of death between two groups was relapse and progression of disease of primary disease. Five years relapse incidence was **27.14**% (CI: 9.04%, 35.30%) for allo-HCT and **54.68%(**CI: 42.02%, 65.09%) for auto-HCT (Gray's test p-value = 0.01). The five years TRM incidence was **8.47%** (CI: 2.92%, 23.33%) and **5.46%** (CI: 3.14%, 12.98%) in allogeneic and autologous patients respectively (Gray's test p-value = 0.36).

Conclusion:

Despite there was no statistically significant difference between two groups in terms of OS but DFS and relapse incidence was meaningfully better in allogeneic group. So, perhaps the reason of non-significant OS improvement in allogeneic group is higher early death due to higher TRM. We suggest that this study needs longer follow up to see whether allo-HCT resulted in OS improvement.

Keywords: Multiple Myeloma, Autologous Hematopoietic Stem Cell Transplantation, Allogeneic Hematopoietic Stem Cell Transplantation. OS, DFS

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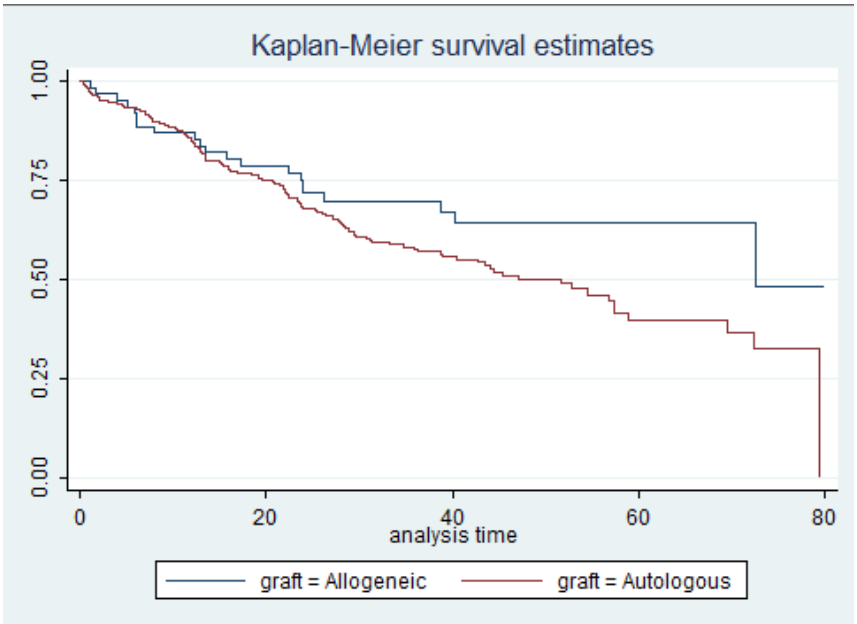

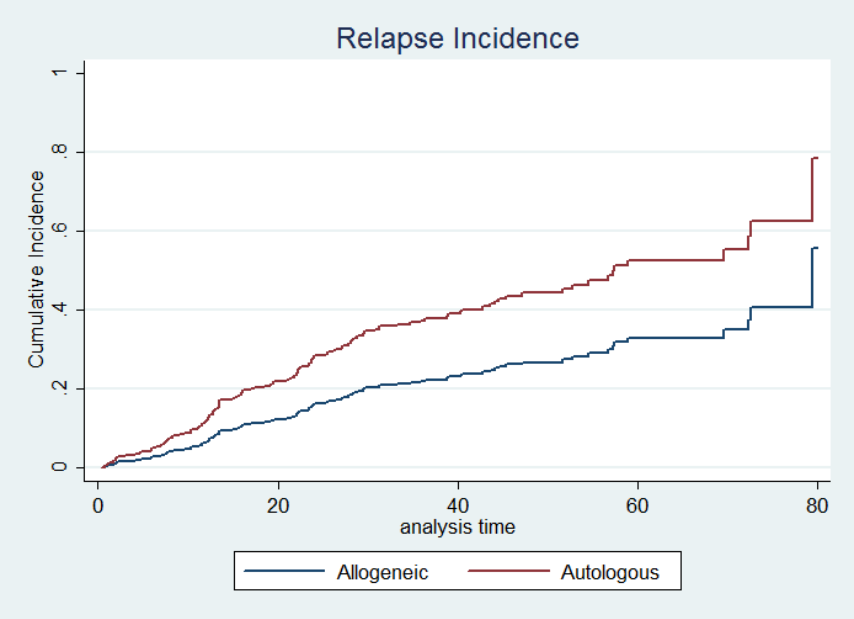
Relapse Incidence
Cumulative Incidence
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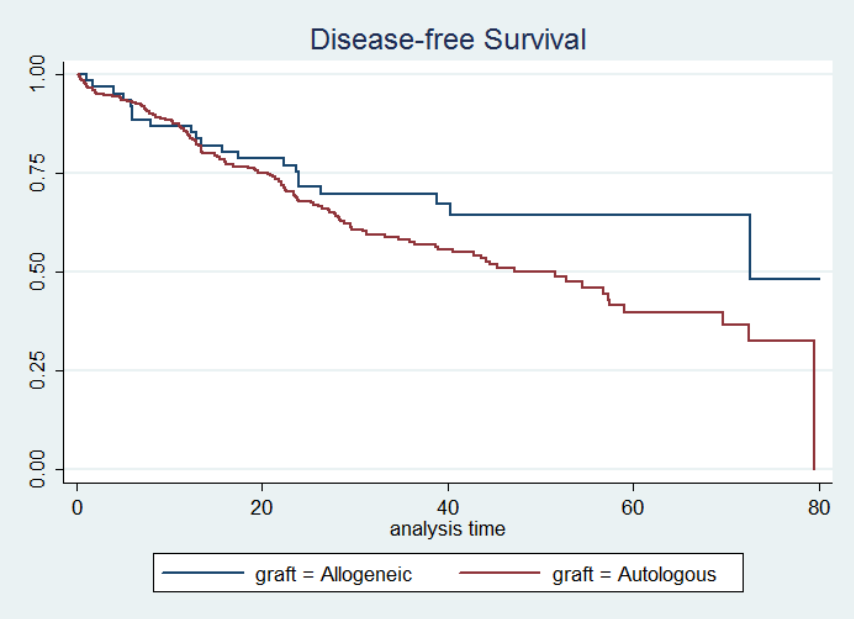
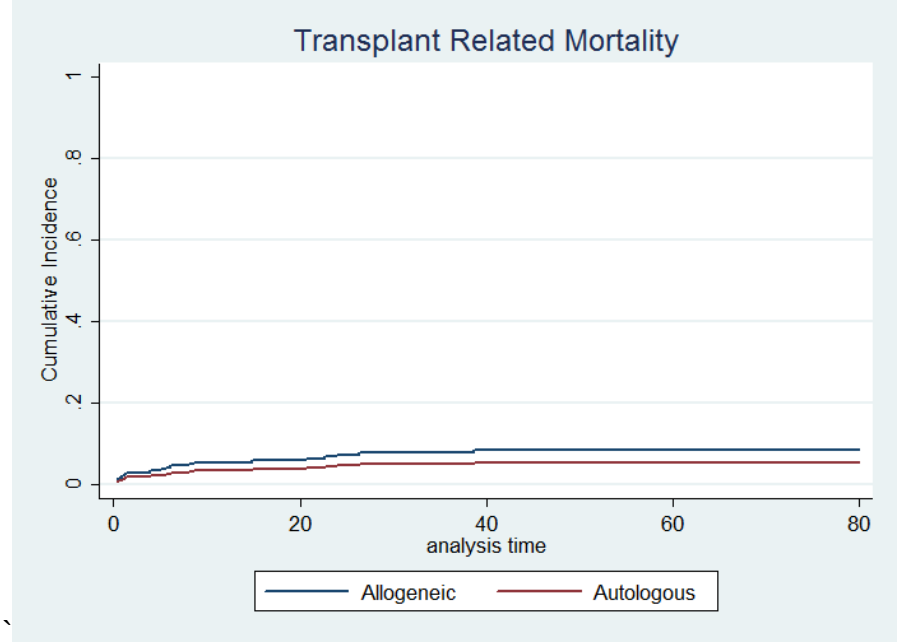
.2
.4
.6
.8
1
0
20
40
60
80
analysis time
Allogeneic
Autologous


Disease-free Survival
0.00
0.25
0.50
0.75
1.00
0
20
40
60
80
analysis time
graft = Allogeneic
graft = Autologous


Transplant Related Mortality
Cumulative Incidence
0
.2
.4
.6
.8
1
0
20
40
60
80
analysis time
Allogeneic
Autologous