Comparison of Total Body Irradiation (TBI) based Conditioning regimen vs Non TBI based protocols in Haploidentical Stem Cell Transplant in a Pakistani Cohort – A Single Centre Experience

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Introduction

- Haplo-SCT serves as an alternative when unavailability of MSD/MUD in resource constrained settings.
- Scarcity of TBI facility in majority of loco-regional Stem Cell Transplant centres.

Aim

Our aim was to establish whether TBI based regimen were better than Non-TBI based protocols in the Haplo-SCT without compromising the key outcomes.

Objectives

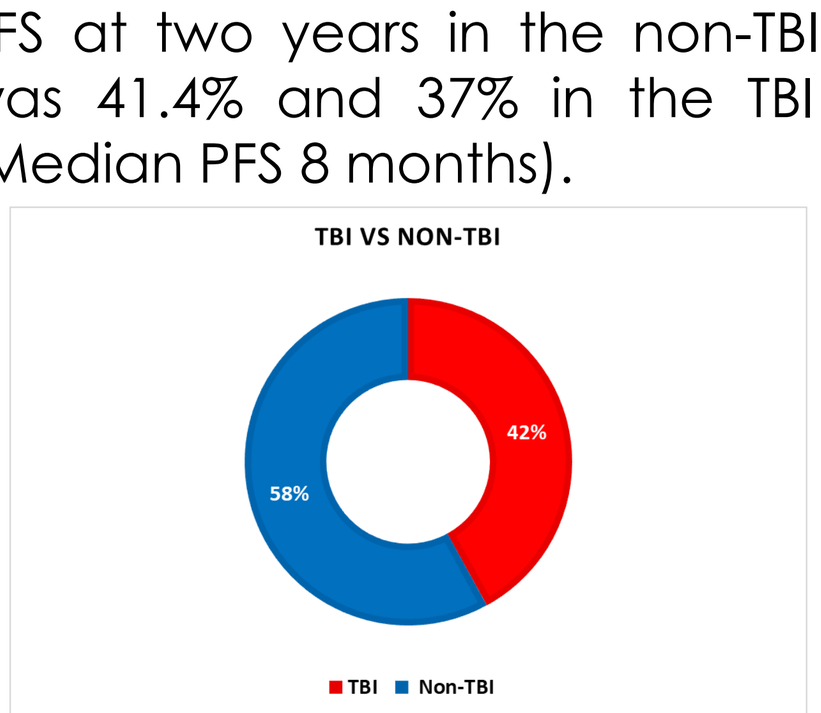
To compare the effects of using TBI-based vs Non-TBI based conditioning protocols in the outcomes of Haplo-SCT in a Pakistani cohort.

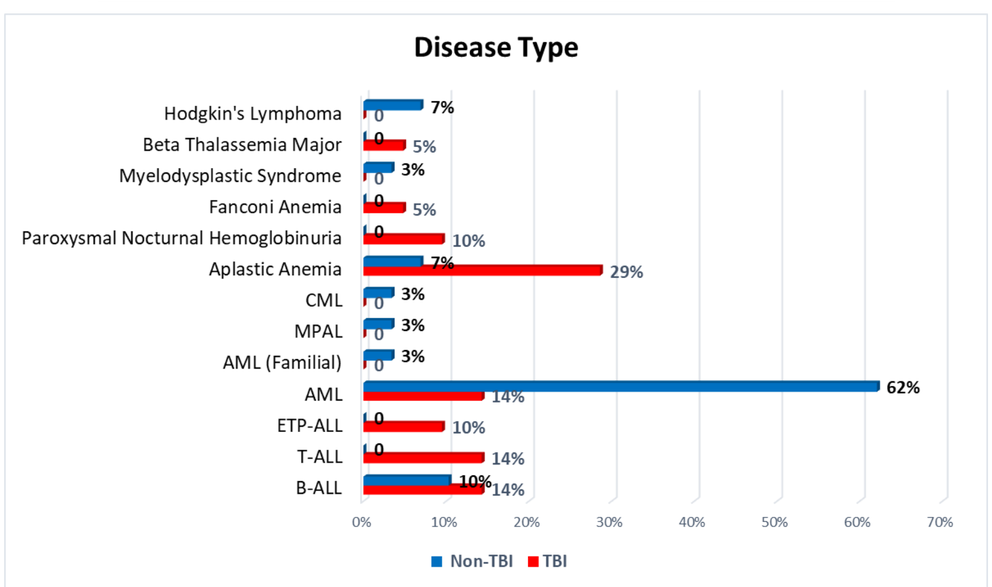
Methods

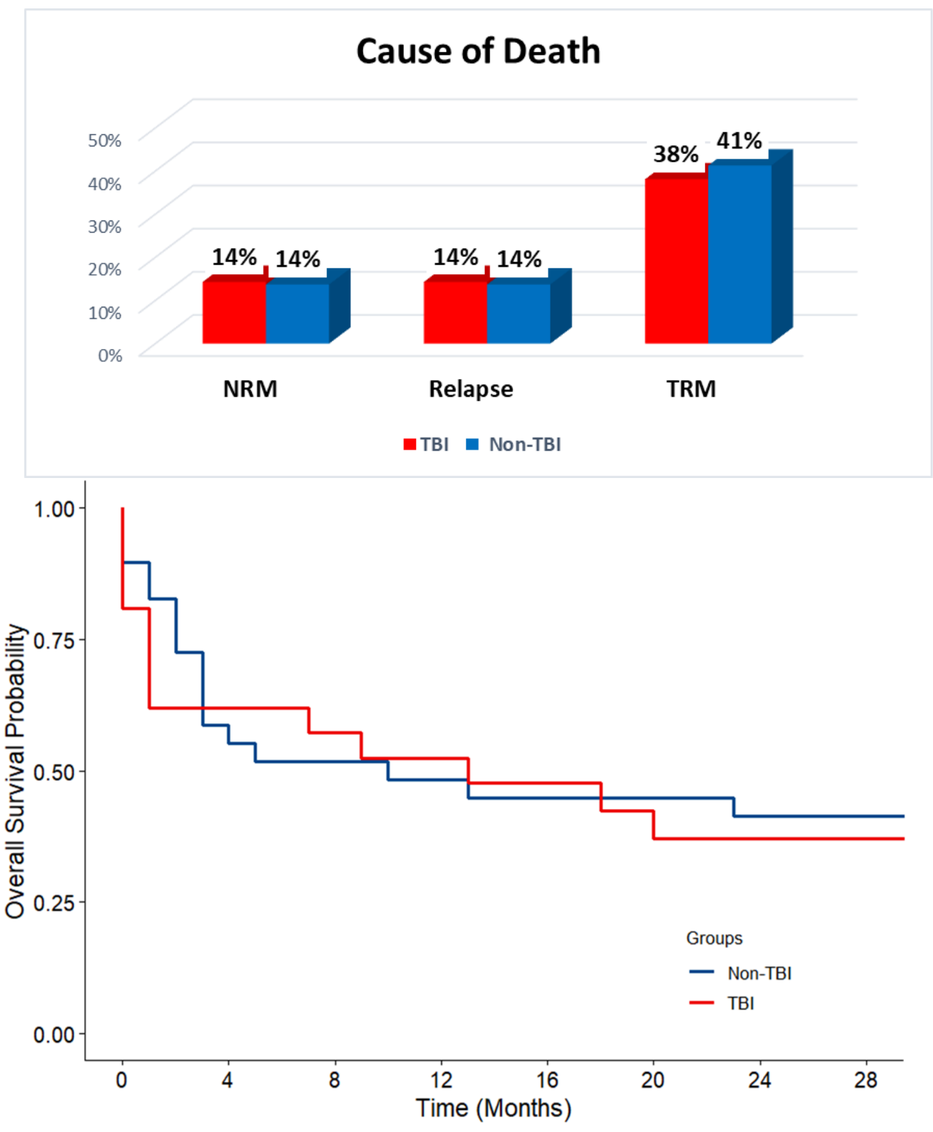
- Single Centre **comparative observational study**
- **50** Haplo-SCT **(TBI 21 vs Non-TBI 29)** patients were included from **DEC-2016 to SEP-2023** in Shifa International Hospital, Islamabad.
- Primary endpoints = Overall Survival & Progression-free survival at two years.
- Secondary outcomes = neutrophil/platelets engraftment, 100-day TRM, NRM & GRFS.
- Statistical Analysis was performed using Kaplan-Meier survival curves.

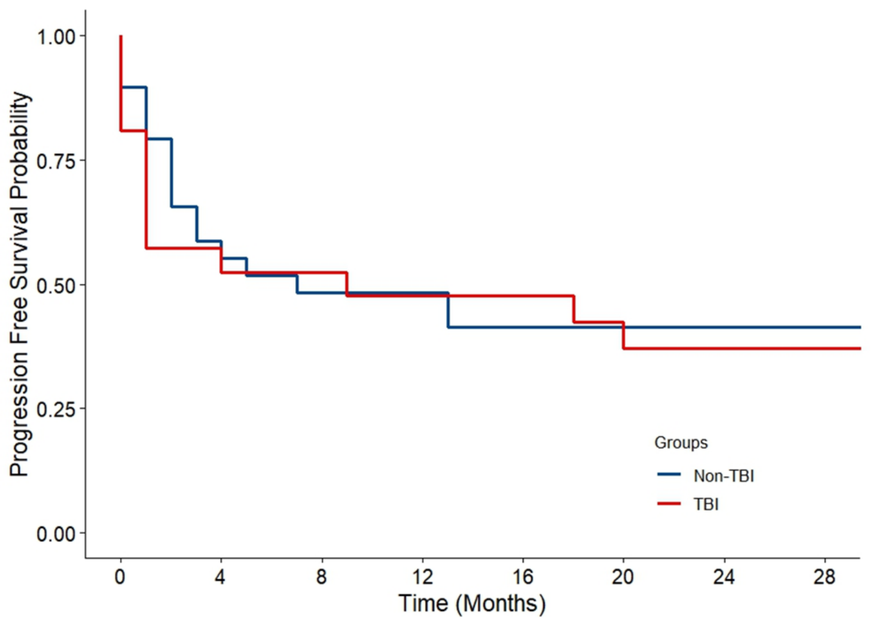
Results

- OS at two years was 41.4% (95% CI, 26.8% - 63.8%) for non-TBI group and 37% (95% CI, 21% - 65.4%) in the TBI group (Median OS 11.5 months)
- PFS at two years in the non-TBI group was 41.4% and 37% in the TBI group (Median PFS 8 months).









Summary

The study demonstrated comparable OS and PFS in both the Non-TBI and TBI groups with a reasonable GRFS.

Discussion

- In our study the outcomes didn't reach statistical significance but **better OS, PFS and relapse incidence percentages were observed with Non-TBI** protocol, while **reduced TRM and incidence of acute GVHD grade 3 or 4 was observed with TBI** regimen.
- **Earlier neutrophil engraftment** in the **TBI group** (p= 0.032) prove that TBI based regimen are quite effective.

References

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2.HLA-Haploidentical Hematopoietic Cell Transplantation for Treatment of Nonmalignant Diseases Using Nonmyeloablative Conditioning and Post-Transplant Cyclophosphamide. Biol Blood Marrow Transplant. 2020 Jul 1;26(7):1332–41.

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