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# OUTCOMES WITH ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION IN TP53-MUTATED MYELOPROLIFERATIVE NEOPLASMS: A SYSTEMATIC REVIEW AND META-ANALYSIS.

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## INTRODUCTION

**Allogeneic hematopoietic stem cell transplantation (allo-HCT) is crucial for patients with myeloproliferative neoplasms (MPN). However, data on its efficacy in MPN patients with the TP53 mutation is limited.**

## AIM

**The aim of this systematic review and meta-analysis is to examine the outcomes of allo-HCT in patients with TP53-mutated MPNs.**

## METHOD

- **A comprehensive literature search was performed on 3 databases (PubMed, Cochrane Register of Controlled Trials, and Clinicaltrials.gov) using MeSH terms and the keywords 'Myeloproliferative Disorders' AND 'TP53 gene' AND 'Allogeneic Transplantation' from the date of inception to May 1, 2024.**
- **The search produced 24 articles. After primary and secondary screening, 3 studies were included.**
- **Interstudy variance was calculated by using the DerSimonian-Laird Estimator. Proportions, along with a 95% confidence interval (CI), were extracted to compute a pooled analysis in the 'meta' package by Schwarzer et al. in the R program.**

## RESULTS

- ***3 studies reporting the role of allo-HCT in TP53-mutated MPN, conducted from 2020 to 2022, included 117 patients. Median follow-up was 71.4 (range, 69.6-73.2) months.***
- ***At 6 years of follow-up, the pooled overall survival (OS) was 30.8% (95% CI 0.08-0.48, $I^2$=85%, P<0.01, n=36/117) and the pooled disease relapse rate was 24.8% (95% CI 0.22-0.40, $I^2$=0%, P=0.35, n=29/117).***
- ***Gagelmann et al. 2022 (1) reported a 6-year relapse-free survival (RFS) of 53% and non-relapse mortality (NRM) of 35% (21-49) with an incidence of acute GvHD of 63%. The risk of death after relapse was 92% in this study.***
- ***Gupta et al. 2020 (2) reported hazard ratios for progression-free survival (PFS) of 2.18 (1.25-3.82) and NRM of 0.66 (0.14–3.00).***
- ***Poor-risk cytogenetics were associated with inferior OS (HR, 1.71; 95% CI, 1.21-2.41), inferior PFS (HR, 1.78; 95% CI, 1.27-2.50), and a higher relapse rate (HR, 1.93; 95% CI, 1.32-2.82) compared with favorable or intermediate-risk alterations. Gagelmann et al. 2022 reported that 39% (n = 19) of the patients experienced post-HSCT relapse, with 20% (n = 10) presenting as leukemic transformation.***

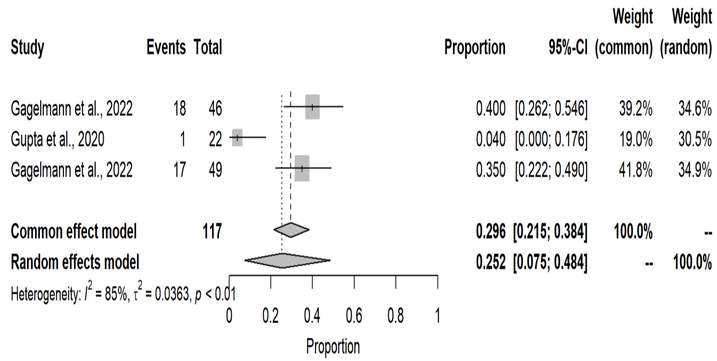



**Figure 1 : pooled Over all Survival at 6 years**

## CONCLUSIONS

**The analysis indicates that allo-HCT offers the potential for long-term survival in MPN patients with TP53 mutations.**

## REFERENCES

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