

The Role of Frontline Hematopoietic Stem Cell Transplantation in Peripheral T-Cell Lymphoma-Not Otherwise Specified

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INTRODUCTION

- PTCL-NOS is the most common PTCL subtype, characterized by aggressive behavior and poor prognosis.
- The benefit of HSCT remains under investigation.
- Using the NCDB, we analyzed the impact of HSCT on survival in a large cohort of patients with PTCL-NOS.

METHOD

- The National Cancer Database (NCDB) was queried for adult patients diagnosed with PTCL-NOS between 2004 and 2019
- We analyzed the impact of hematopoietic stem cell transplantation on overall survival (OS) using Kaplan-Meier estimates and multivariate Cox regression to identify factors associated with OS
- We studied the OS using Kaplan-Meier estimates and multivariate cox regression analysis to evaluate factors associated with OS.

CONCLUSIONS

- HSCT was associated with significantly improved OS in PTCL-NOS, consistently across racial/ethnic groups.
- These findings may reflect transplant eligibility bias.
- On MVA, allogeneic HSCT was linked to worse outcomes than autologous HSCT, likely due to transplant-related mortality or selection of more aggressive disease.
- Significant sociodemographic disparities in HSCT access highlight the need for equitable care delivery and prospective studies to refine transplant strategies.

RESULTS

BASELINE CHARACTERISTICS

- A total of 14,301 patients with PTCL-NOS were included in the analysis. 76.4% were younger than 75 years at diagnosis, 60.1% were male, 65.7% were White, 17.1% were Black, and 7.4% were Hispanic.
- Advanced-stage disease (III & IV) was present in 49.3%. Median age at diagnosis was 65 years; median OS (mOS) was 15.3 months (95% CI, 14.6–16.0).
- First-line treatment included chemotherapy (61.5%), radiation (4.3%), chemotherapy plus radiation (7.4%), and no treatment (24.2%).
- Overall, 6.6% of patients underwent HSCT: 2.6% autologous, 0.5% allogeneic, and 3.5% unspecified.

HSCT Use

- HSCT use tripled from 3.3% in 2004 to 9.9% in 2019.
- HSCT use varied by
- Race (White, 7.3%; Hispanic, 6.4%; Black, 4.3%; $P<0.001$)
- Socioeconomic factors: insured vs uninsured (6.8% vs 2.1%), highest vs lowest income quartile (8.1% vs 3.9%), and highest vs lowest education areas (8.4% vs 4.5%), with $P<0.001$ for all

SURVIVAL ANALYSIS

- HSCT was associated with significantly longer survival (mOS, 121 vs 13 months; $P<0.001$), with similar outcomes between autologous and allogeneic HSCT (119 vs 102 months; $P=0.284$).
- This benefit was consistent across disease stage (early and advanced stage), age group (younger than 75 years and 75 years or older), and all racial/ethnic groups.

MULTIVARIATE ANALYSIS

Factors associated with worse OS were:

Older age, male sex, Black race, B-symptoms at diagnosis, HIV-positive status, higher comorbidity score, and allogeneic (vs autologous) HSCT.

Factors associated with better OS were:

Having medical insurance, radiation therapy, chemotherapy, and HSC

