SHORT-TERM CARDIOTOXICITY AFTER AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION: A RETROSPECTIVE SINGLE-CENTER STUDY

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Introduction

- Autologous Stem Cell Transplantation (AHSCT) is a curative therapy for hematologic malignancies.
- Cardiotoxicity is an under-recognized early complication, detectable by echocardiography.
- Definite cardiotoxicity: Left Ventricular Ejection Fraction (LVEF)↓ >10% to <50%.
- Probable subclinical cardiotoxicity: LVEF ↓ >10% to ≥50% with Global Longitudinal Strain (GLS) ↓ >15%.

Aim and Objectives

- Assess for cardiac changes100 days post ASHCT and Identify Predictors of dysfunction
- Evaluate tolerance in patients with baseline LVEF< 50%

Methods

- Design: IRB-approved, retrospective, single-center.
- Patients: 205 adults who underwent AHSCT between 2013–2022 at AUBMC. And Had Echocardiography Pre and 100-days Post-AHSCT
- Statistics: SPSS, Paired t-test, McNemar's, chi-square.

Results

- Description: Multiple myeloma (41.5%),Hodgkin's (22.9%), Non-Hodgkin's Lymphoma (35.6%).
- Conditioning: BEAM (52.7%), Melphalan (44.9%).
- LVEF Simpson decrease of 1.51% from pre- to post-AHSCT. A GLS decrease of 0.35% from pre- to post-AHSCT
- Paired t-test: Mean EF declined slightly but significantly (58.3% → 57.4%, p=0.016,).
- McNemar's Test for LVEF and Valve Disease are both insignificant
- Deaths: 10/205 within 100 days (mostly sepsis; 2 cardiac).

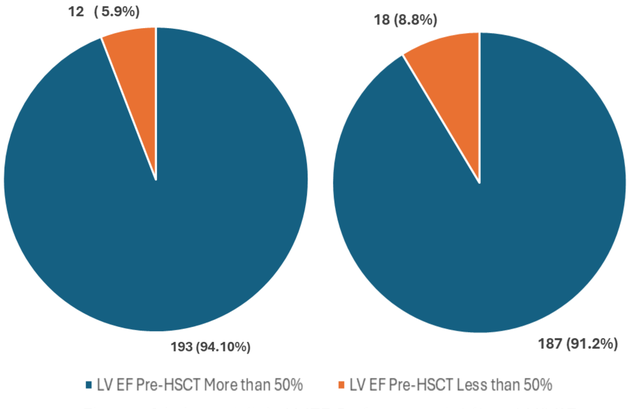


Figure 1(a) and (b): LVEF Before and After AHSCT

- Chi- Square Test for risk of Post-AHSCT only significant with Prior history of LV Dysfunction (<0.001)
- Subgroup (LVEF <50%, n=12):
  - All tolerated HSCT safely (no Intensive Care admissions/cardiac events).
  - 9/12 improved EF at 100 days.

Table (1): Crosstabulation between Post-AHSCT Valve Disease and Patients Characteristics

Patient Characteristics	Post AHSCT Valve Disease		Chi Square p value
	No	Yes	
Gender			0.024
Male	69 (68.3%)	56 (53.8%)	
Female	32 (31.7%)	48 (46.2%)	
History of LV Dysfunction			0.018
No	81 (80.2%)	95 (91.3%)	
Yes	20 (19.8%)	9 (8.7%)	

Discussion and Summary

- AHSCT caused mild but significant LVEF decline, yet most patients LVEF remained >50%.
- Valve disease increased post-AHSCT, especially in males and those with prior LV dysfunction.
- Patients with low baseline LVEF tolerated AHSCT safely, with no ICU events; some improved EF.
- AHSCT appears safe and feasible.
- Still, long-term cardiac monitoring and use of subclinical markers.

References

1. Oliver AC, et al. Blood.
2. Saini N, et al. Biol Blood Marrow Transplant.
3. Markiewicz M, et al. Clin Oncol.

Footer

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