

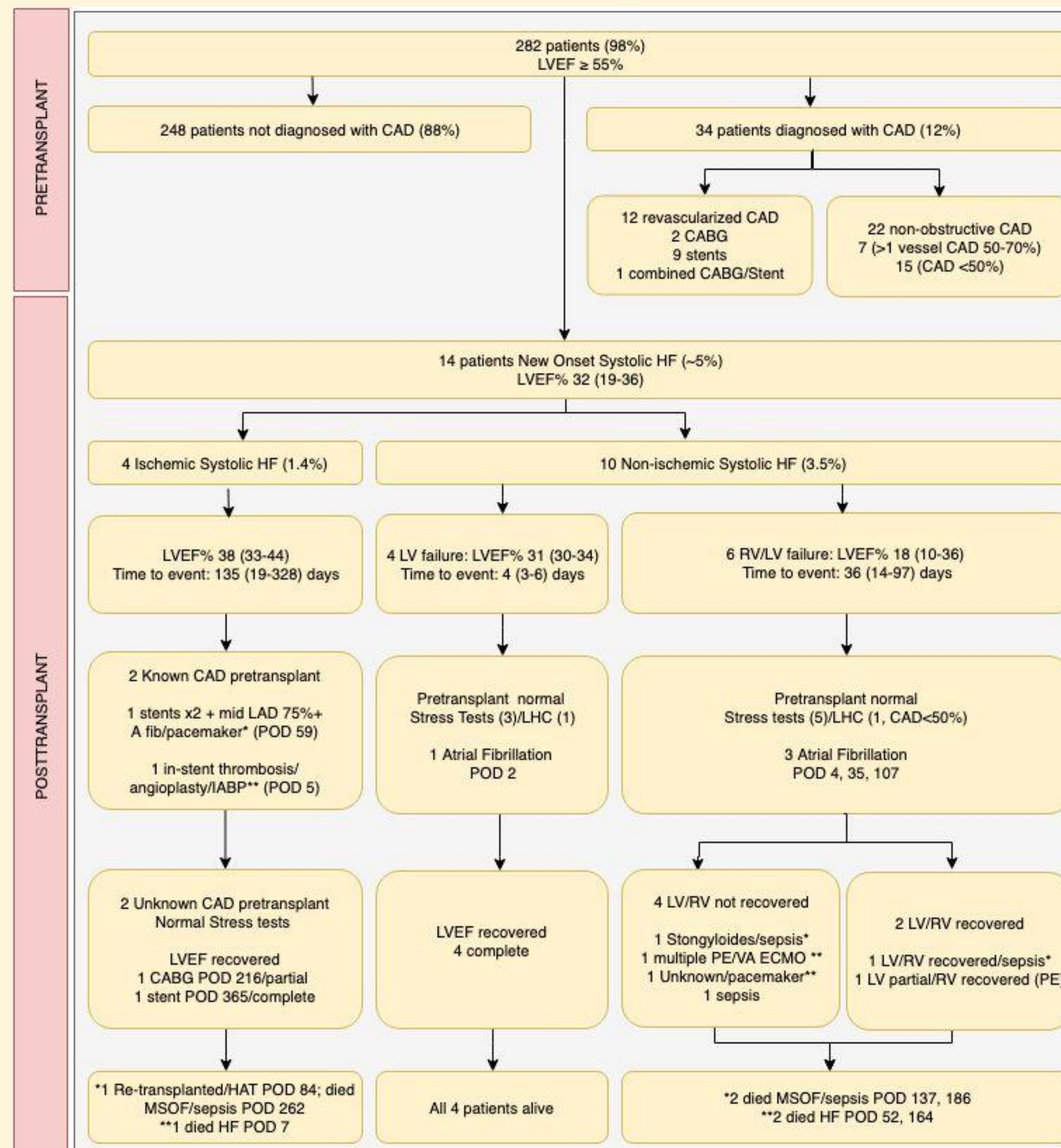
Heart Failure Following Liver Transplantation: A Retrospective Single Center Experience

Introduction

- Patients undergoing liver transplantation (LT) are at high risk for perioperative major adverse cardiovascular events. Among the many cardiovascular complications, postoperative heart failure (HF) is a distinct clinical entity with an incidence of 3-27% and a mortality of 45%.
- Different etiologies and predictors of HF post liver transplantation have been described. However, there is little data about characteristics of HF post-transplant.
- We conducted a study to identify the incidence, potential risk factors, characteristics, and outcome of new onset HF one year after LT in patients with preserved left ventricular ejection fraction (LVEF \geq 55%) pre-transplant.

Methods

- Adults undergoing LT from Jan 2016 to Dec 2018 were included in study (282 patients).
- Data was obtained by retrospective review of electronic medical records.
- Decreased LVEF $<$ 45% on post-op echocardiography was diagnostic of LV HF.
- Primary outcome was development of new onset LV and/or RV HF within 1-year post-transplant



Risk Factors Associated with Post-Transplant New Onset Heart Failure

Risk factors	OR	95% CI	P value
History of TIPS	5.3	1.529-18.471	0.0086*
Pre-transplant mechanical ventilation	7.3	1.749-30.278	0.0064*
Donor Risk Index	15.6	1.293-190.023	0.0276*

Results

- Incidence of MACE (MI/stroke/heart failure) was noted in 8.9% of patients.
- Post-transplant new onset HF occurred in 5%.
- Ischemic and non-ischemic HF occurred at a rate of 1.4% and 3.5%, respectively.
- Non-ischemic HF occurred earlier (3-97 days) compared to ischemic HF (19-328 days).
- Non-ischemic HF affected LV only in 1.4% and both RV/LV in 2.1% of transplant cases.
- The most likely etiology for non-ischemic isolated LV HF was stress-induced; all these patients survived the event.
- Non-ischemic biventricular systolic HF was linked to pulmonary embolism and sepsis.
- Three risk factors were statistically associated with post-transplant systolic HF: history of TIPS, preop mechanical ventilation, quality of donor graft expressed as donor risk index.
- In those who developed HF after liver transplantation (14 patients), recovery of LV function was complete in 7/14 and partial in 2/14 within the 1-year follow up period.
- A statistically significant decrease in 1-year survival rate was recorded in those who had HF after LT: 57% versus 96%.

Conclusion

- Non-ischemic HF is the dominant etiology in the first-year post-transplant with excellent recovery when the LV is exclusively involved.
- Sepsis and PE exacerbate HF post transplant leading to biventricular dysfunction and worse outcome.
- History of TIPS, mechanical ventilation prior to transplantation, and donor risk index are risk factors for HF post LT.
- Post-transplant HF negatively impacts 1-year survival, particularly in patients with biventricular failure.
- Patients at risk of developing post-transplant HF should be identified early and followed up.

References

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