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The Evolving Long-Term Outcome of Heart Transplantation in Amyloid Patients

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Background

Both amyloid light chain (AL) amyloidosis and transthyretin (TTR) amyloidosis are now expanding indications for heart transplantation (HTx). In the past, AL amyloid, in particular, had been a contraindication to HTx given its suboptimal control, systemic nature & progression to other organs, premalignant character, recurrence in allograft/transplanted organ, and the increased risk for mortality.

Advanced ACM carries a poor prognosis!

Standard heart failure therapies have limited utility & can be harmful: including Beta-blockers, ACEIs, ARBs, Digoxin

Left Ventricular Assist Devices (LVADs) have had only isolated successes - Use of these is often limited by RV dysfunction -> restrictive CM

Modern treatments including proteasome inhibitors (reversible, such as Bortezomib, or irreversible) combined with traditional chemotherapy drugs (such as melphalan or dexamethasone) have allowed amyloid patients to increasingly receive heart transplants - Normalization of free-light chains - Rapid hematological improvement - Used for amyloidosis relapse post-HTx

Purpose

In past research, the 2-year survival rate of patients with cardiac amyloidosis is less than 20% without HTx compared to a survival rate of 60% after HTx

We sought to assess long-term post-transplant outcome in amyloid patients in the current era, using our patient population that underwent HTx for cardiac amyloidosis at our single center.

Methods

- Between 2010 and 2015, we assessed 45 Heart Transplant Pts:
  - All Amyloid (n=27) -> broken up into AL (n=5), TTR wt senile (n=10), TTR mutant (n=12)
  - Non-Amyloid Restrictive Control (n=18)
- Endpoints included:
  - Subsequent 3-year survival
  - Subsequent 3-year freedom from CAV (as defined by stenosis >= 30% by angiography)
  - Subsequent 3-year freedom from non-fatal major adverse cardiac events (NF-MACE: myocardial infarction, new congestive heart failure, percutaneous coronary intervention, implantable cardioverter defibrillator/pacemaker implant, stroke).
  - Subsequent 3-year freedom from any-treated rejection, acute cellular rejection, and antibody-mediated rejection

Results Summary

There was no significant difference between the All amyloid and restrictive non-amyloid patients with respect to 3-year survival and 3-year freedom from CAV, NF-MACE, and rejection.

Furthermore, there was no significant difference between the AL amyloid, TTR-wt, TTR-m, and restrictive non-amyloid patients with respect to 3-year survival and 3-year freedom from CAV, NF-MACE, and rejection.

Endomyocardial biopsies post-transplant did not show amyloid.

Conclusion

- In the current era, both AL & TTR amyloid patients have acceptable mid-term outcome after HTx.
- Larger numbers & longer follow-ups are needed to confirm findings.
- Need to consider sociological & economical components to analyze the capability of patients to undergo & afford such extensive Tx.
- RNA TAFAMIDIS THERAPY, Doxycycline, Green Tea for now!