Outcomes of pre- heart transplantation desensitization in highly sensitized patients bridged with left ventricular assist devices

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Introduction

- Desensitization therapy in orthotopic heart transplantation (OHT) candidates can shorten wait time and improve outcomes of highly sensitized patients, especially those bridged with left ventricular assist devices (LVADs) who are prone to complications.
- No specific guidelines exist for desensitization in OHT and studies have yielded varying results.
- We aim to study outcomes in these patients.

Methods

- We retrospectively reviewed patients on OHT waitlist in our center from 01/01/2013 to 10/01/2019.

Results

- We identified 10 OHT-waitlisted, LVAD-bridged patients undergoing pre-OHT desensitization. All of those were highly sensitized with panel-reactive antibody (PRA)>80% and with significant comorbidities (LVAD infection/malfunction, severe right ventricular dysfunction, ventricular tachycardia and aortic insufficiency).
- Three patients were delisted and did not complete desensitization (inability to tolerate desensitization x2, non-compliance x1).

Results (Cont'd)

- Seven patients tolerated desensitization and were transplanted (Table 1) at a mean age of 52 years and mean time to transplant of 437 days. Mean decrease in total and unacceptable PRA were 22% and 34% respectively.
- All patients had complications related to coagulopathy and/or bone marrow suppression. Other complications include infection (x3), bleeding (x3), gastritis (x1), ischemic stroke (x1), hypotension (x1) and neuropathy (x3).
- Transplanted patients were alive at the time of study and had a mean survival of 627 days. They had infectious complications early after transplant with mean time to first infection of 20 days. One patient had clinically significant rejection episode 390 days after OHT and one patient had cardiac allograft vasculopathy 536 days after OHT.

Conclusion

- When tolerated, pre-OHT desensitization at our center was effective and beneficial for sick sensitized patients on LVADs.
- Side effects are a significant limitation.
- Further studies are needed to guide therapy in those individuals.

Table 1. Desensitization regimen, changes in PRA levels and survival for transplanted patients.

Patient	Desensitization regimen (x doses)	Baseline PRA (%)	Baseline unacceptable* PRA (%)	Pretransplant PRA (%)	Pretransplant unacceptable* PRA (%)	Survival** (days)
1	PP (x24), Bortezomib (x12), Rituximab (x2)	100	99	97	90	1850
2	PP (x16), Bortezomib (x8), Rituximab (x1)	100	99	22	0	1128
3	PP (x8), Bortezomib (x4), Rituximab (x1)	82	79	82	79	515
4	PP (x22), IVIG (x8), Bortezomib (x10), Rituximab (x4)	97	90	97	76	472
5	PP (x16), IVIG (x4), Rituximab (x1), Bortezomib (x8)	94	89	90	82	270
6	PP (x16), Bortezomib (x5), Rituximab (x1)	99	90	96	79	97
7	PP (x8), Bortezomib (x4), Rituximab (x1)	100	100	36	0	58

*defined as mean fluorescent intensity (MFI) greater than 3000. **all alive at time of study 10/01/2019.
PRA: panel-reactive antibody; PP: plasmapheresis; IVIG: intravenous immunoglobulin.

Disclosures: none.