DOES PERSISTENT FIRST-YEAR LOW OR HIGH CARDIAC INDEX RESULT IN POOR OUTCOME AFTER HEART TRANSPLANTATION?

ACC Moderated Poster Contributions
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Background: Cardiac output is commonly measured at the time of surveillance heart biopsy during the 1st yr after heart transplant. Persistent low or high cardiac index (CI) in stable patients (pts) may be observed due to donor/recipient size mismatch or denervated physiology. There is concern that persistent low CI or high CI during the 1st year after transplant is associated with poor outcome.

Methods: Between 1994 and 2010 we evaluated 717 heart transplant pts and recorded average 1st year CI [l/min/m2] in stable pts (mean of 103 measurements). At time of CI measurement, these pts did not have rejection and were normotensive with normal intracardiac filling pressures. Pts with low CI < 2.0 (n=7) and high CI > 4.0 (n=24) were compared to those with normal CI (n=717) for outcomes including freedom from 1st yr rejection, 5-yr actuarial survival and 5-yr freedom from cardiac allograft vasculopathy (CAV). Thyroid function was normal in all cases.

Results: The average CI for the 3 groups were: Low CI = 1.96 +/- 0.04, normal CI = 2.91 +/- 0.42 and high CI = 4.32 +/- 0.32. Pts with low and high CI had similar outcomes vs pts with normal CI including: 5-yr survival (71%, 79%, 84%, respectively, p=0.55), 5-yr freedom from CAV (57%, 79%, 80%, respectively, p=0.28) and 1-yr freedom from rejection (86%, 84%, 84%, respectively, p=0.99). For the low CI group, donor/recipient height ratio was 1.00 +/- 0.09 and weight ratio was 0.87 +/- 0.31; for the high CI group height ratio was 1.03 +/- 0.06 and weight ratio: 1.29 +/- 0.51.

Conclusion: Persistent low and high CI during the 1st yr after transplant do not appear to be risk factors for poor outcome. These benign deviations in CI appear to be due to changes in stroke volume from undersized and oversized donor hearts.