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Division:	Cardiology
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Title of Abstract:	LONGITUDINAL STUDY OF HEMODYNAMIC AND AUTONOMIC RESPONSE TO MECHANICAL CIRCULATORY SUPPORT AMONG ADVANCED HEART FAILURE PATIENTS
Please copy and paste your abstract here: (no more than 300 words):	<p>Purpose: Determine the hemodynamic and autonomic response to implantation of durable continuous-flow (CF) left ventricular assist device (LVAD) among individuals with advanced heart failure (AHF).</p> <p>Background: HF leads to neurohormonal activation with exaggerated increases in sympathetic tone. This hyperadrenergic environment is positively correlated with HF severity and mortality. Previous investigations have demonstrated that non-physiologic pulsatility contributes to marked increases in sympathetic tone and so it is thought that CF-LVAD implantation would lead to heightened sympathetic tone given its continuous-flow mechanics.</p> <p>Methods: Nine individuals (59 +/- 9 yrs, 8 males) scheduled for CF-LVAD implantation underwent hemodynamic assessment ~two weeks prior to, and ~three months following surgery. At those dates, participants</p>

completed a graded head-up tilt (HUT) at supine, 30 and 60 degrees, with assessment of BP, HR, and catecholamine at each position.

Results:

HR and MAP during HUT were similar prior to and following CF-LVAD implantation (MAP 83.6 \pm 13.6 v. 88.6 \pm 14.1 mmHg, for pre- and post-LVAD respectively, group P=0.260). However, pulse pressure was significantly reduced following device implantation (50 \pm 17, 22 \pm 10, mmHg for pre- v, post-LVAD, respectively, group P<0.001). Despite the reduction in pulsatility, plasma norepinephrine levels were significantly reduced following device implantation (pre-LVAD 710 \pm 365, post- LVAD 401 \pm 200 pg/ml, group P < 0.001). Notably, pre-LVAD supine resting norepinephrine levels were significantly greater than post-LVAD levels at a 60-degree HUT, indicating a marked reduction in autonomic tone following device implantation.

Discussion:

Despite a reduction in physiologic pulsatility following CF-LVAD implantation, autonomic tone, as measured by plasma norepinephrine levels, significantly declines following device implantation. However, norepinephrine levels observed following device implantation are elevated compared to levels observed among healthy individuals. Together, this information suggests that CF-LVAD implantation reduces, but does not reverse, the hyperadrenergic environment that is characteristic of AHF.