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Arrhythmias

CATHETER ABLATION OF HEMODYNAMICALLY UNSTABLE VENTRICULAR TACHYCARDIA WITH MECHANICAL CIRCULATORY SUPPORT

Poster Contributions

Poster Sessions, Expo North

Saturday, March 09, 2013, 10:00 a.m.-10:45 a.m.

Session Title: Ventricular Arrhythmias in Cardiomyopathy

Abstract Category: 7. Arrhythmias: VT

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Background: Although catheter ablation of hemodynamically unstable ventricular tachycardia (VT) is possible with mechanical circulatory support (MCS), little is known regarding the relative efficacy of different supporting devices for such procedures. This study compared the efficacy of hemodynamic supports using various types of MCS for catheter ablation of unstable VT.

Methods: Over a 3 year period since 2009, 16 consecutive patients (aged 63 ± 11 years with left ventricular ejection fraction of $20 \pm 9\%$) who underwent ablation of hemodynamically unstable VT were included in this study. Hemodynamic support included percutaneous (Impella[®] 2.5, n=5), implantable left ventricular assist devices (LVADs, n=6), and peripheral cardiopulmonary bypass (CPB, n=5).

Results: Except for 2 Impella cases, hemodynamic support was adequate (with consistent mean arterial pressure of >60 mmHg), allowing sufficient activation mapping for ablation. In the Impella and CPB groups, the mean time under hemodynamic support was 185 ± 86 minutes, and the time in VT was 78 ± 36 minutes. Clinical VT could be terminated at least once by ablation in all patients except 1 with Impella due to hemodynamic instability. Peri-procedural complication included hemolysis in 1 patient with Impella and surgical intervention was needed for percutaneous Impella placement problems in another 2 patients. The median number of appropriately delivered defibrillator therapy was significantly decreased from 6 in the month before VT ablation to 0 in the month following ablation ($p=0.001$).

Conclusion: Our data suggest that peripheral CPB and implantable LVAD provide adequate hemodynamic support for successful ablation of unstable VT. Impella[®] 2.5, on the other hand, was associated with increased risk of complication, and may not provide sufficient hemodynamic support in some unstable VT patients.