Increased Hypertension after Transcatheter Aortic Valve Implantation and Correlation with Outcome

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Background: Transcatheter Aortic Valve Implantation (TAVI) has recently been offered for patients with severe aortic stenosis that are at high surgical risk.

The disappearance of pressure gradient across the aortic valve exposes these patients to dramatic hemodynamic changes. These changes challenge the post-procedural treatment and may further affect these patients in the chronic phase. We describe the hemodynamic changes post-TAVI in-hospital and their clinical correlates.

Methods: Consecutive patients that underwent TAVI were prospectively analyzed. Demographic and clinical data, changes in blood pressure (BP), medical treatment and clinical outcomes were studied in-hospital and at average 13 months post-procedure. Serious adverse events (SAE) recorded in follow-up included death, myocardial infarction, stroke, and recurrent hospitalization.

Results: Forty-six patients were studied. Mean age was 79.5±6.7, Logistic Euroscore was 21.4±12.6. 34 patients had a prior diagnosis of hypertension (HTN), 40 patients were treated with anti-hypertensive medications. The systolic BP rose on average 29 mmHg after the procedure and remained 9 mmHg above baseline at 5 days. Diastolic BP and mean BP following TAVI were significantly elevated as well. 27 patients required intensification of antihypertensive therapy including 13 patients that needed parenteral anti-hypertensive medications. Increased HTN appeared mainly in patients with preserved left ventricular function (EF>50%). The rates of in-hospital and 13 months SAE were 14% and 48% respectively, for patients who developed excessive HTN as compared to 29% and 88% respectively for patients without post-procedural HTN ($p<0.05$).

Discussion: Following TAVI the majority of our patient cohort had worsening HTN that necessitated intensification of antihypertensive therapy. The tendency to develop HTN following TAVI appeared mostly in patients with preserved left ventricular function and predicted a favorable clinical outcome.