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Timing and associated predictors of onset of new conduction disturbances requiring permanent pacemaker implantation after transcatheter aortic valve implantation

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Objectives: This study aimed to investigate the onset and the associated predictors of new conduction disturbances (CDs) requiring permanent pacemaker implantation (PPI) after transcatheter aortic valve implantation (TAVI).

Background: The onset and associated predictors of onset of new CDs leading to PPI are still unknown. However, these are essential for safe and early discharge. Currently, these CDs lead to prolonged post-procedural monitoring after TAVI, limiting early discharge possibilities.

Methods: We retrospectively analyzed data from five centers in Europe. Post-TAVI electrocardiograms and telemetry data were evaluated to identify the onset of new CD in all patients who required a PPI within 30 days after TAVI. Early onset CDs were defined as within 48 hours after procedure, and late onset CDs as after 48 hours.

Results: A total of 2,804 patients were included for analysis. The PPI rate was 11%, of which 18% was due to late onset (>48h) CDs. Independent predictors for late onset CDs requiring PPI were pre-existing non-specific intraventricular conduction delay (IVCD), pre-existing right bundle branch block (RBBB), self-expandable valves, and predilatation (Figure). Patients with a balloon-expandable valve without predilatation did not develop CDs requiring PPI after 48 hours.

Conclusions: Associated predictors of late onset conduction disturbances leading to PPI after TAVI were pre-existing IVCD, pre-existing RBBB, the use of self-expandable valves, and predilatation. Patients without CDs in the first 48 hours after TAVI and without risk factors for late onset CDs requiring PPI are possible candidates for early discharge after 48 hours.

