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Determinants of success and hemodynamic impact of balloon postdilatation of self-expanding transcatheter aortic valves.

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Abstract

OBJECTIVES: To explore the rate, the **determinants of success**, and the **hemodynamic impact** of balloon postdilatation (BPD) of self-expanding transcatheter heart valves (SE-THVs)

BACKGROUND: BPD is commonly used to optimize valve expansion and reduce paravalvular leakage (PVL) after transcatheter aortic valve implantation (TAVI) without clearly knowing its **hemodynamic** benefits.

METHODS: Patients (n = 307) who received a SE-THV were stratified according to whether a BPD was performed or not. Patients who received BPD were stratified according to the severity of PVL remaining after BPD into two groups: Successful BPD (≤mild PVL + BPD) and Failed BPD (moderate-severe PVL + BPD).

RESULTS: BPD was performed in 121 patients (39.4%) and was successful in 106 patients (87.6% of attempts). A ratio of the postdilatation balloon diameter to the annulus diameter ≤0.95 was an independent predictor of BPD failure (OR: 10.72 [2.02-56.76], P = .005). Peak transvalvular pressure gradient (PG) was lower in the Successful BPD group (14[12-22] mm Hg) than in the Failed BPD group (18[16-23] mm Hg, P = .029), and did not rise in either group during follow-up (median [IQR], 364[161-739] days).

CONCLUSION:

BPD was performed in 39% of patients who received a SE-THV, and was successful in the majority of attempts. BPD failure was more likely in patients with a small postdilatation balloon-to-annulus diameter ratio. Effective BPD improved THV **hemodynamic** performance, and this was maintained in the intermediate-term post-TAVI.

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KEYWORDS: balloon; **hemodynamic**; postdilatation; regurgitation; self-expanding; transcatheter aortic valve

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