

Effect of severe left ventricular systolic dysfunction on hospital outcome after transcatheter aortic valve implantation or surgical aortic valve replacement: results from a propensity-matched population of the Italian OBSERVANT multicenter study

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Abstract

OBJECTIVE:

Despite demonstration of the superior outcomes of transcatheter aortic valve implantation (TAVI) versus optimal medical therapy for severe left ventricular systolic dysfunction, studies comparing TAVI and surgical aortic valve replacement (AVR) in this high-risk group have been lacking.

METHODS:

We performed propensity matching for age, gender, baseline comorbidities, previous interventions, priority at hospital admission, frailty score, New York Heart Association class, EuroSCORE, and associated cardiac diseases. Next, the 30-day mortality and procedure-related morbidity of 162 patients (81 TAVI vs 81 AVR) with severe left ventricular systolic dysfunction (ejection fraction $\leq 35\%$) were analyzed at the Italian National Institute of Health.

RESULTS:

The 30-day mortality was comparable ($P = .37$) between the 2 groups. The incidence of periprocedural acute myocardial infarction ($P = .55$), low output state ($P = .27$), stroke ($P = .36$), and renal dysfunction (peak creatinine level, $P = .57$) was also similar between the 2 groups. TAVI resulted in significantly greater postprocedural permanent pacemaker implantation ($P = .01$) and AVR in more periprocedural transfusions ($P < .01$) despite a similar transfusion rate per patient (2.8 ± 3.7 for TAVI vs 4.4 ± 3.8 for AVR; $P = .08$). The postprocedural intensive care unit stay (median, 2 days after TAVI vs 3 days after AVR; $P = .34$), intermediate care unit stay (median, 0 days after both TAVI and AVR; $P = .94$), and hospitalization (median, 11 days after TAVI vs 14 days after AVR; $P = .51$) were comparable.

CONCLUSIONS:

In patients with severe left ventricular systolic dysfunction, both TAVI and AVR are valid treatment options, with comparable hospital mortality and periprocedural morbidity. Comparisons of the mid- to long-term outcomes are mandatory.

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KEYWORDS:

35; 35.2; AMI; AVR; FRANCE-2; French Transcatheter Aortic Valve Intervention; ICU; ImCU; LCOS; LVEF; PARTNER; PPM; Placement of AoRTic TraNscathetER; SAS; SLVSD; TAVI; VARG; Valve Academic Research Consortium; acute myocardial infarction; aortic valve replacement; intensive care unit; intermediate care unit; left ventricular ejection fraction; low cardiac output syndrome; permanent pacemaker; severe aortic stenosis; severe left ventricular systolic dysfunction; transcatheter aortic valve implantation