

OBJECTECTIVES

- To determine the number of patients undergoing aortic and mitral valve intervention
- To estimate the proportion of transcatheter aortic valve implantation (TAVI) and transcatheter mitral valve replacement (TMVr)
- To estimate 30-day cardiovascular in-hospital mortality in patients who underwent traditional heart valve surgery versus transcatheter approach in Italy

METHODS

From Italian Hospital Information System (HIS), which collects information related to all discharges from public and private hospitals in Italy, we identified all patients aged ≥18 years undergoing single aortic and mitral valve intervention between January 2015 and December 2018.

According to the type of intervention and the Italian national guidelines for the coding of heart valve interventions, implemented by Ministry of Health, subjects were classified in two groups: traditional surgery (TS) and transcatheter approach (TA).

30-day cardiovascular in-hospital mortality (CIHM) was evaluated considering the subset of patients undergoing intervention between January 2017 and 30 November 2018 (enrollment period).

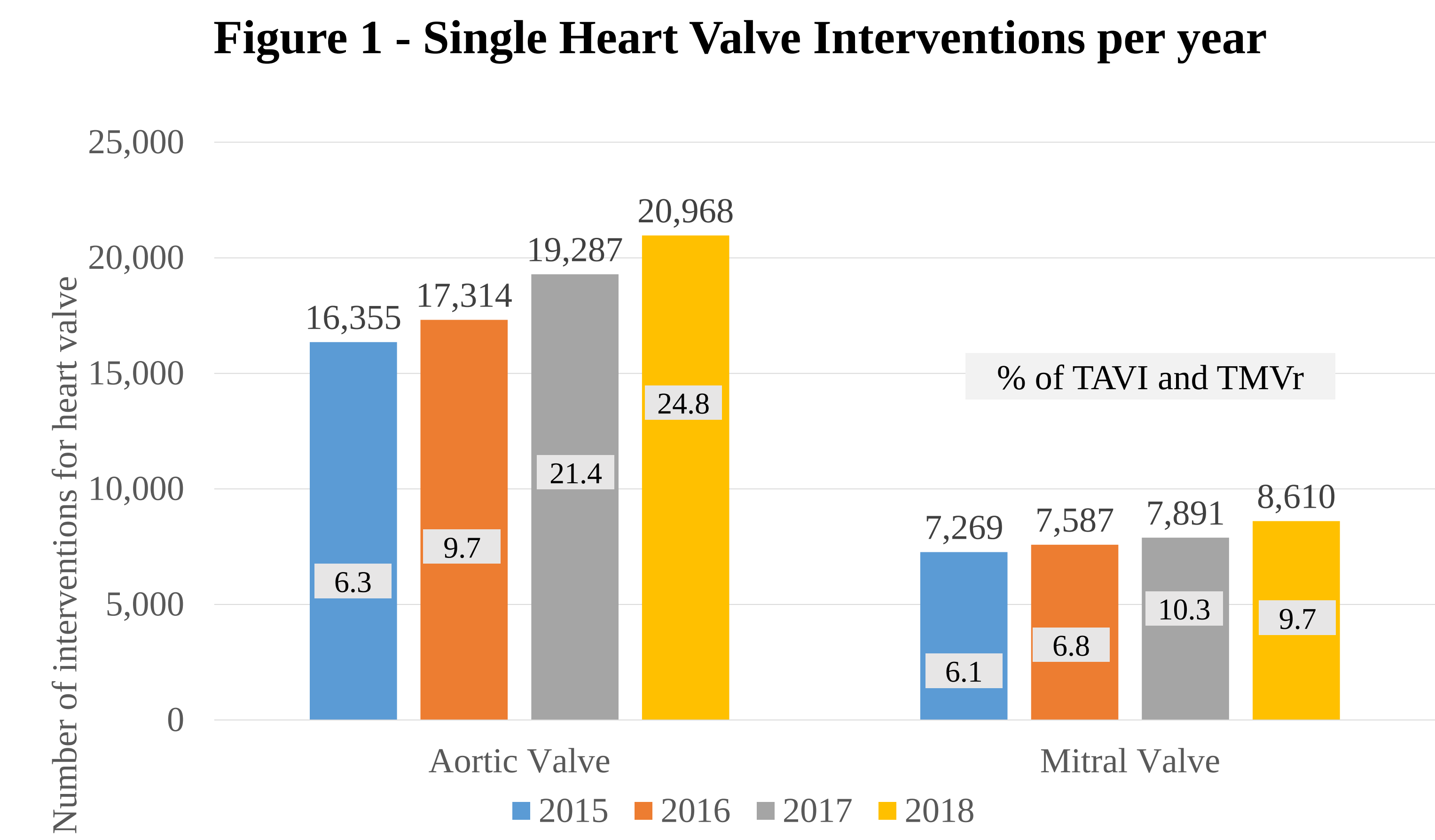
For patients with multiple hospital admissions, only the first one was considered (index-event).

Patient clinical characteristics was defined by retrieving comorbidities recorded during hospitalizations in the 2 years before the index-event.

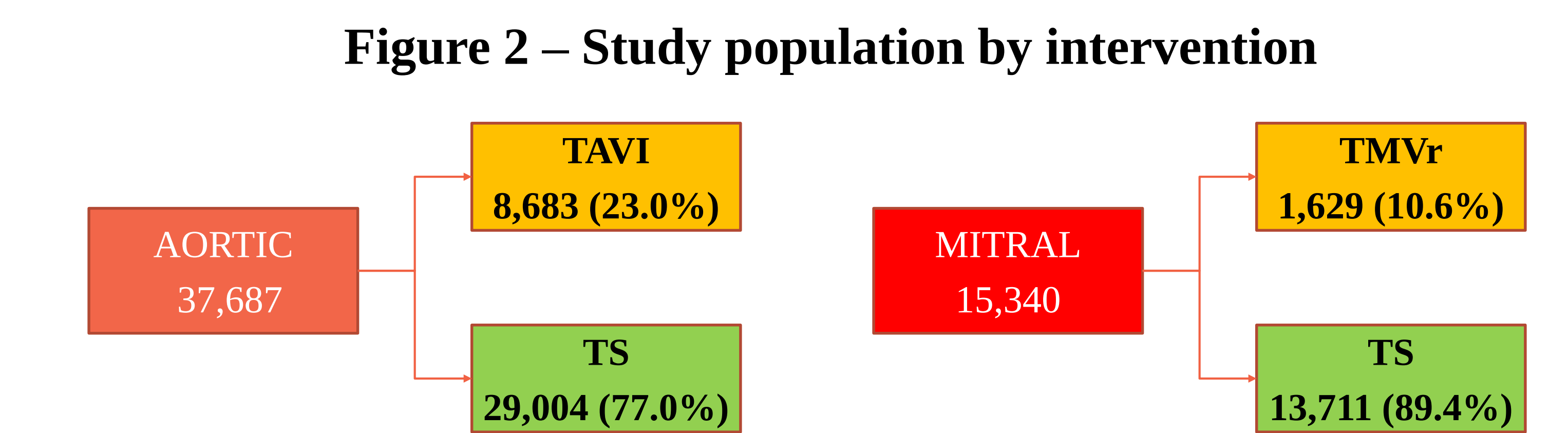
The association between intervention and outcome was assessed using logistic models [Odds Ratio (OR)] and adjusting for age, sex and the risk factors selected by a stepwise bootstrap procedure.

RESULTS

The analysis showed an increase in the number of aortic and mitral valve interventions in the study period (+28.2% and +18.4% respectively). This increase was mainly driven by increased volume of transcatheter procedures: TAVI accounted for 6.2% of aortic valve interventions in 2015 and 24.8% in 2018. The trend was less evident for the mitral valve: TMVr represented 6.1% of replacements in 2015 and 9.7% in 2018.



During the enrollment period, 37,687 subjects (58.2% men, mean age 72.6 years) undergoing single aortic valve intervention and 15,340 patients (60.0% men, mean age 65.5 years) undergoing single mitral valve intervention were selected. TAVI and TMVr patients proportion were 23.0% and 10.6% respectively.



Overall 30-day CIHM for patients undergoing aortic valve was 3.0%: 3.3% for TS patients and 2.2% for TA patients (OR 0.64; 95%CI 0.55-0.75). Multivariate analysis confirmed a reduction of mortality for patients undergoing TA (OR_{adj} 0.52; 95%CI 0.43-0.61).

Table 1 – Aortic Valve: 30-day cardiovascular in-hospital mortality

Intervention	N	30-day CIHM (%)	OR (95% CI)	OR adj (95% CI)
TS	29,004	3.3	-	-
TAVI	8,683	2.3	0.64 (0.55 – 0.75)	0.52 (0.43 – 0.61)

Overall 30-day CIHM for patients undergoing mitral valve was 3.2%: A reduction in the risk of mortality for TA patients (2.3% vs 3.3%) was confirmed in both the univariate (OR 0.71; 95%CI 0.50-0.98) and multivariate model (ORadj 0.50; 95%CI 0.35 0.70).

Table 2 – Mitral Valve: 30-day cardiovascular in-hospital mortality

Intervention	N	30-day CIHM (%)	OR (95% CI)	OR adj (95% CI)
TS	13,711	3.3	-	-
TMVr	1,629	2.3	0.71 (0.50 – 0.98)	0.50 (0.35 – 0.70)

CONCLUSIONS

The study, based on Italian administrative databases, allowed to determine the volume of heart valve interventions and estimate the in-hospital mortality for patients with aortic and mitral heart valve disorders, highlighting a significant association between outcome and treatment strategy.