Evaluating Health Outcomes And Costs Related To In-hospital Procedures For The Management Of Mitral Valve Disease In Spain

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Objectives

This study evaluates mitral valve disease (MVD) rates of in-hospital intervention (surgical and transcatheter), health outcomes, and related economic burden in Spain using administrative national data.

Methods

The analysis involves cases registered between 2016-2019 in the Spanish Health Service Minimum Data Set (RAE-CMBD[1], using ICD10-ES codes). Intervention rates by region and year (x10^6), patient risk profile (age-adjusted Charlson index), outcomes (in-hospital death), length of stay (LoS), and DRG-based costs (€, 2019) were examined. Statistical (Akaike's criterion) and clinical criteria were used to optimize multivariate logistic and negative binomial regressions to explore factors associated with exitus and LoS, respectively.

Results

A total of 10,533 cases were performed on isolated MVD, which represents a national rate of 228.20 for that period, 19.20% of total structural heart disease (SHD) not considering pulmonary valve procedures. Spain's highest standard use rates are found in Madrid, Asturias, and Navarra (Figure 1).

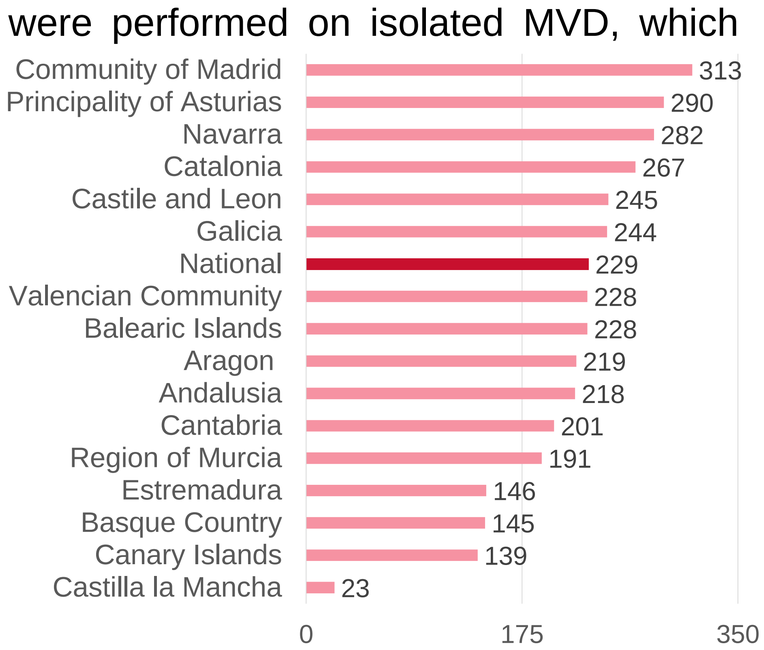

Figure 1. Standardized TVD rate of use by Autonomous communities

The MVD death rate (x10^6) was 15.45, and the in-hospital mortality range was 6.33-7.80%. The unadjusted LoS was 16.5 (18.1) days including 3.5 (8.9) in ICU. The main variables related to death and LoS (p<0.05) are shown in Figures 2 and 3, respectively.

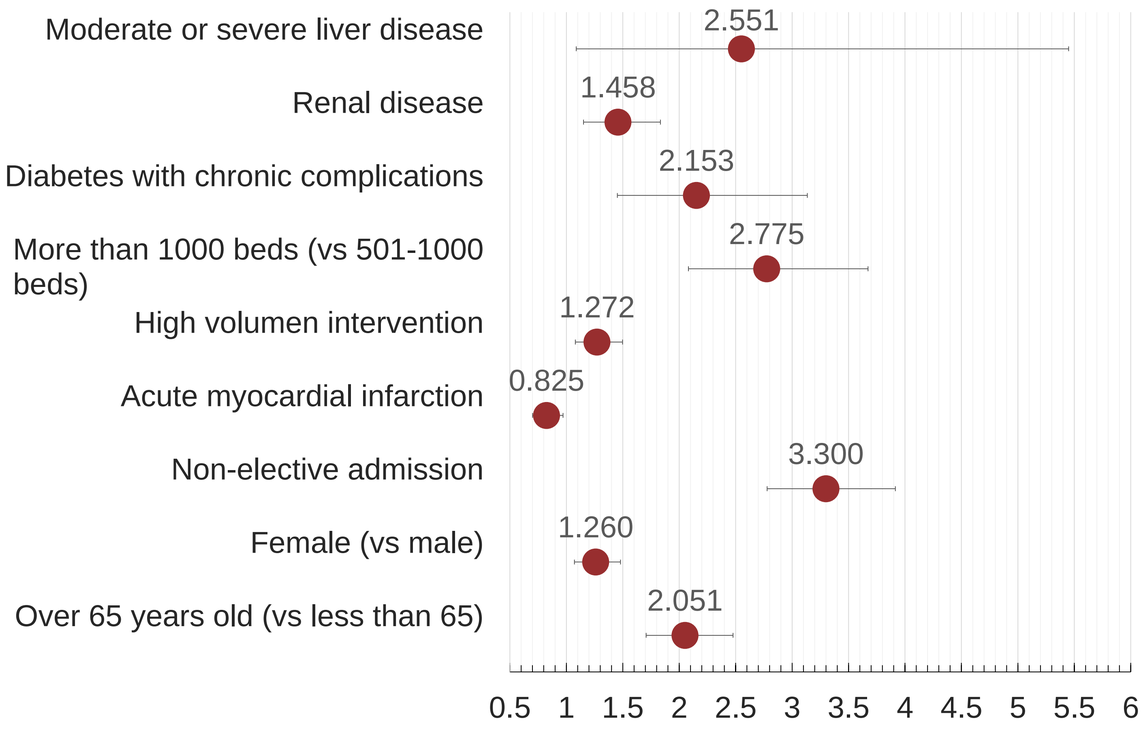

Figure 2. Associated factors (p-value<0.05) with in-hospital mortality (odds ratio)

Per-patient mean costs increased from 23,489€ (11,848€) in 2016 to 25,037€ (11,025€) in 2019 (p-value<0.001).

Combined (concomitant procedures) MVD and tricuspid were 2,776 cases with a national rate for the entire period of 60.40. The in-hospital mortality range was 6.85-9.98%. Per-patient mean costs also increased (p-value<0.001) from 26,495€ (10,817€) in 2016 to 29,341€ (9,890€) in 2019 (Figure 4).

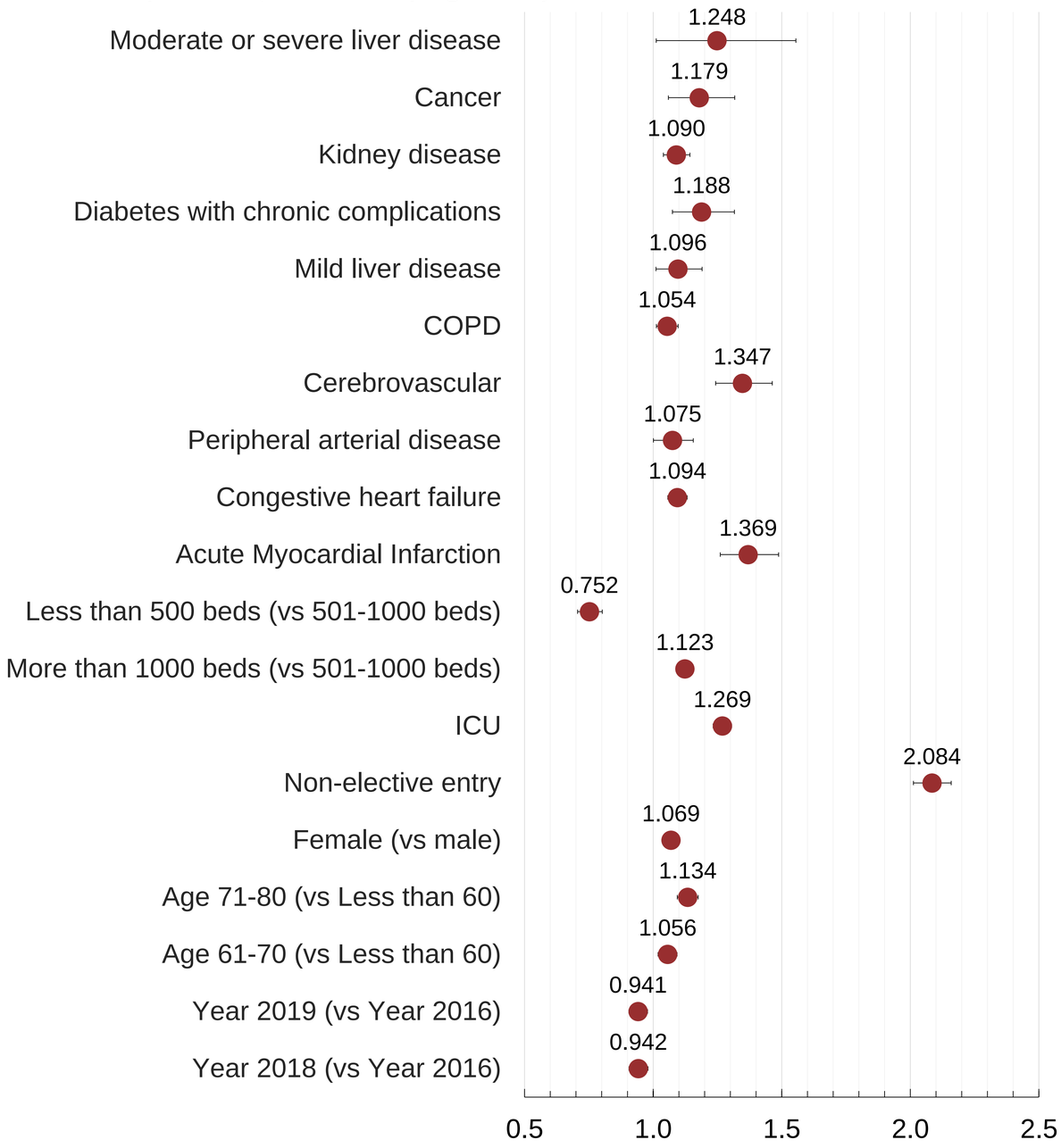

Figure 3. Associated factors (p-value<0.05) with LoS (odds ratio)

The total annual cost for MVD was 63,721,794€ and 19,296,064€ for MVD with tricuspid 18.86% and 5.71% of the total annual cost of SHD (not considering pulmonary valve procedures), respectively.

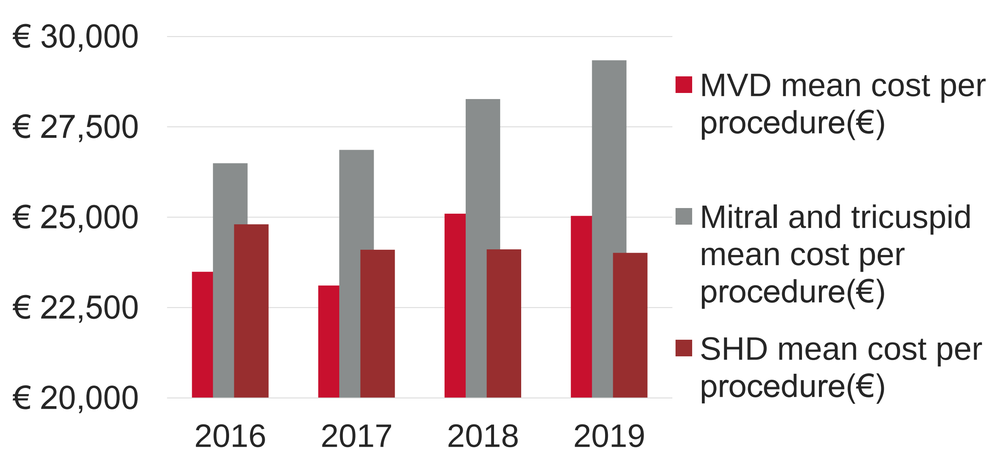

Figure 4. Cost progression by year.

Conclusions

The MVD represents a large volume of interventions for SHD with considerable resource utilization and costs in Spain. However, this burden of illness only captures the part corresponding to the procedures, it does not include the diagnoses or the follow-up of the patients. This information could be useful to assess the effect of innovations in the management of MVD patients.

1, Registro de Actividad de Atención Especializada-RAE-CMBD, https://www.sanidad.gob.es/estadEstudios/estadisticas/cmbdhome.htm

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