Assessing the impact of Transcatheter Edge-to-Edge Repair in managing Degenerative Mitral Regurgitation in Spain between 2016 and 2020

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Room E2.2.

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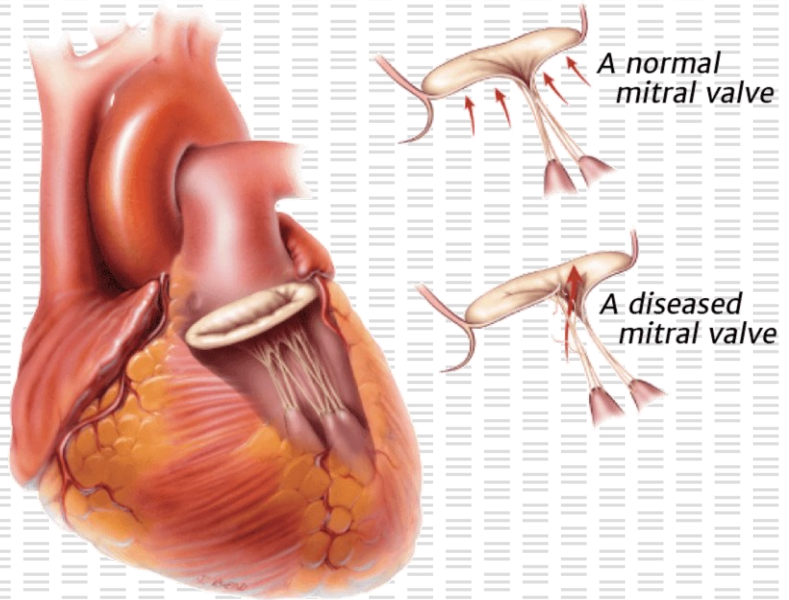

Image obtained from: https://www.edwards.com/au/patients-care-partners/heart-valves-disease-information/valve-defects

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INTRODUCTION AND OBJECTIVES

- **Mitral regurgitation** (MR) is the second-most frequent valvular heart disease in Europe[1]. **Degenerative mitral regurgitation** (DMR) characterized by mitral valve prolapse is the most frequent type of organic mitral valve disease[2].
- **Mitral transcatheter edge-to-edge repair** (TEER) has emerged as an **alternative** to **surgical mitral valve repair** (SMVr) in patients with prohibited surgical risks or advanced heart failure with severe MR[3].

The aim was to **evaluate the impact of TEER and SMVr** in managing DRM in Spain (2016 to 2020) through **lenght of stay (LoS),** in-hospital **mortality**, and **costs.**

METHODS

The analysis was conducted analysing MR cases through International Classification of Diseases 10th revision (**ICD-10) codes** in the **Specialized Health Activity Registry (RAE-CMBD)** of the Spanish Ministry of Health from **2016-2020**.

A **peer-reviewed** (two independent clinical experts) validated algorithm identified DMR etiology.

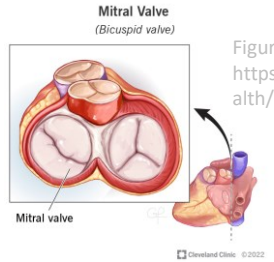

Figure obtained from: https://my.clevelandclinic.org/health/body/23244-mitral-valve

Mitral Regurgitation:
Diagnosis codes of interest: I34.0, I34.1
Procedural codes:
Surgical: 02QG0ZZ, 02UG0JZ
TEER: 02QG3ZZ, 02QG4ZZ, 02UG3JZ
Exclusion criteria:

- All patients suffering infective endocarditis (I33.0) at the time of admission and patients with stays of less than two days in procedures other than transcatheter and who had not been transferred to other centres or died
- Rheumatic mitral valve disease (I05.0 to I05.9).
- All patients with previous pulmonary valvular prostheses.
- All TEER procedures will exclude valve dilation procedures (027G*** and 027J***).
- Interatrial septal closure procedures (0255***).

DMR: A distinction will be made between degenerative (DMR) and functional (FMR) following the next criteria defined by Edwards team and validated with Spanish KOLs:
Patients free of:

- 42.0: Dilated cardiomyopathy and 25.5: Ischemic cardiomyopathy
- History of myocardial infarction: I21, I22, I25.2, I24.1 (Myocardial infarction // Subsequent ST-elevation myocardial infarction // Old myocardial infarction // Dressler's syndrome (post-myocardial infarction syndrome))
- History of CABG: B202***, B212***, B203***, B213***, B223***, B233*** or Z95.1, I25.7
- History of other cardiac surgery: Z95.2, Z95.3, Z95.4, Z95.810
- History of Angina pectoris: I20.*
- History of Chronic Ischemic Heart Disease: I25.*

Adult patients in **public and publicly funded hospitals**, stratified by year, age, and risk profile using the age-adjusted Charlson comorbidity index (aCCI), mortality, LoS, and ICU stay.

Axentiva 1.Vahanian A, et al. 2022 .*European Heart Journal*, 43(7): 561-632. 2.Antoine, C., et al. 2018. *Circulation: Cardiovascular Imaging*, *11*(1). 3.Young, M. N., et al. 2022. *JAMA Cardiology*, *7*(7), 770.

RESULTS

Out of 228,455 reported MR patients in the period 2016-2020, 136,821 (**59.89%) suffered DMR**, and 52.35% over 80 years. Notably only 1.85% of MR patients received non-pharmacological treatment.

DMR diagnoses in the period 2016-2020

Δx = 11.65% anually
Median [IQR] **aCCI** of 5 [4.00, 7.00]

LoS (median [IQR]) of 7.00 [4.00, 11.00]

8.75% **in-hospital mortality**

	TEER in DMR				
Year	2016	2017	2018	2019	2020
n	33	39	85	112	154
Deaths	3	0	2	4	1

TEER has been consolidated for **older high-risk patients** and a **higher aCCI**.

- 4.6x more in 2020
- 97.64% survival
- 57.92% patients >75yr
- 52.96% male patients

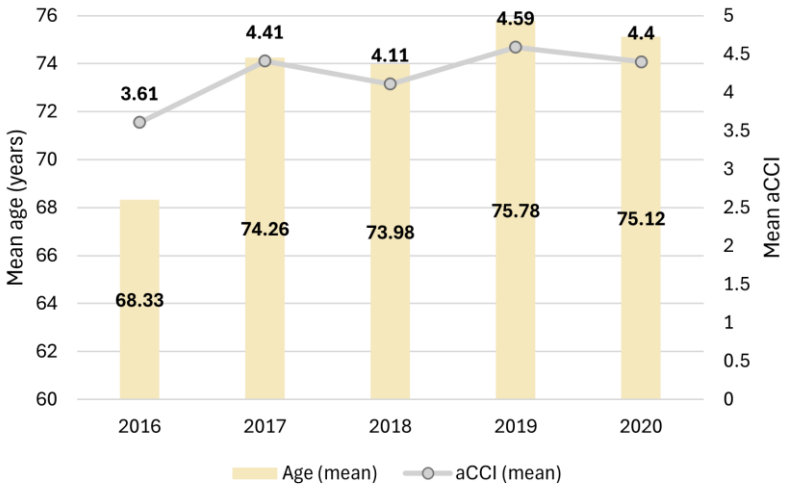

Figure 1. *Mean age and mean age-adjusted Charlson comorbidity index of patients suffering DMR undergoing TEER.*

	SMVr in DMR				
Year	2016	2017	2018	2019	2020
n	374	382	588	663	477
Deaths	9	8	12	15	11

Patients that undergo SMVr tend to have a **lower aCCI** and **minor age**.

- 2,484 procedures
- 97.79% survival
- 40.1% patients <60yr
- 65.42% male patients

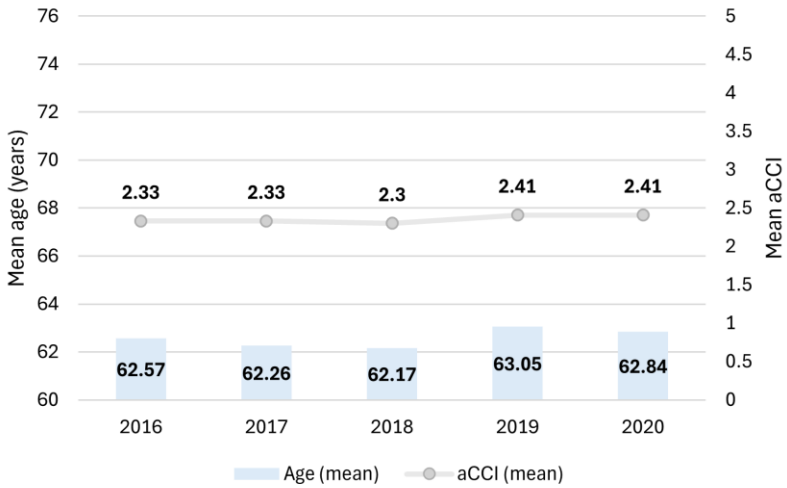

Figure 2. *Mean age and mean age-adjusted Charlson comorbidity index of patients suffering DMR undergoing SMVr.*

Axentiva MR: mitral regurgitation ; DMR: degenerative mitral regurgitation ; aCCI: age-adjusted Charlson comorbidity Index ; TEER: transcatheter edge-to-edge repair ; SMVr: surgical mitral valve repair ; LoS: Length of Stay

RESULTS

TEER in DMR

DMR patients that undergo TEER have a 5 days median LoS

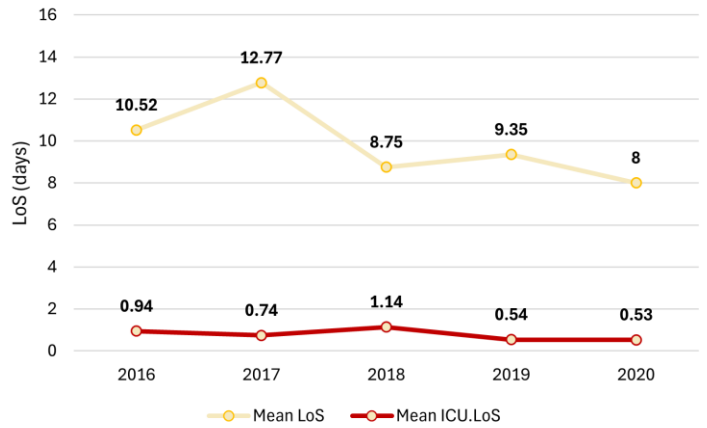

Figure 3. *LoS and ICU stay of patients undergoing TEER per year*

The mean cost per DMR patient undergoing TEER is **€12,464.**

There is an increase in the cost per patient from 2016 to 2020.

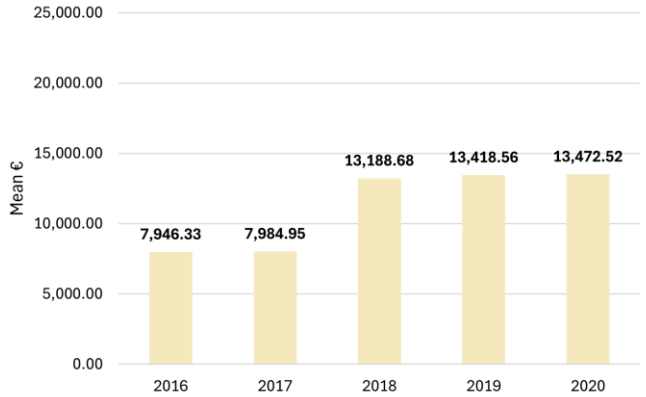

Figure 5. *Mean cost per patient undergoing TEER per year*

SMVr in DMR

DMR patients that undergo SMVr have a 10-days median LoS

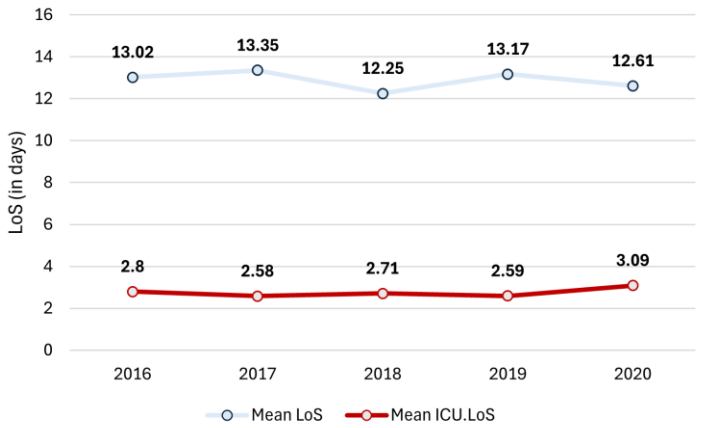

Figure 4. *LoS and ICU stay of patients undergoing SMVr per year*

The mean cost per DMR patient undergoing SMVr is **€20,808.**

There is an increase in the cost per patient from 2016 to 2020.

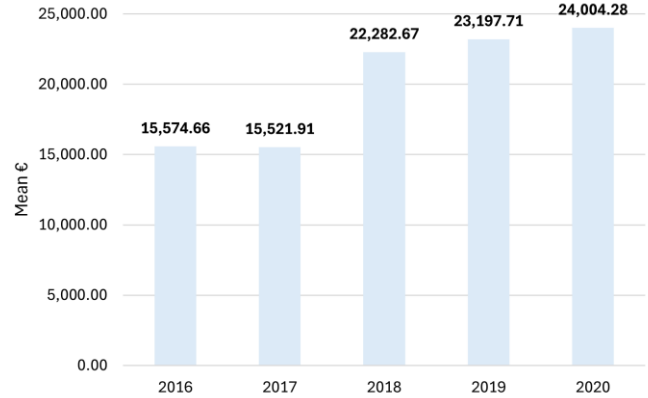

Figure 6. *Mean cost per patient undergoing SMVr per year*

CONCLUSIONS

1. The analysis underscores a minority of DMR patients being treated.
2. TEER **enhances the treatment options** for DMR patient where high risk surgery is a concern.
3. Low LoS observed could **benefit healthcare system**, **impact positively hospital capacity** and **minimize resource utilization**.

Thank you

Contact

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