

2024 대한심장혈관흉부외과학회 제56차 추계학술대회

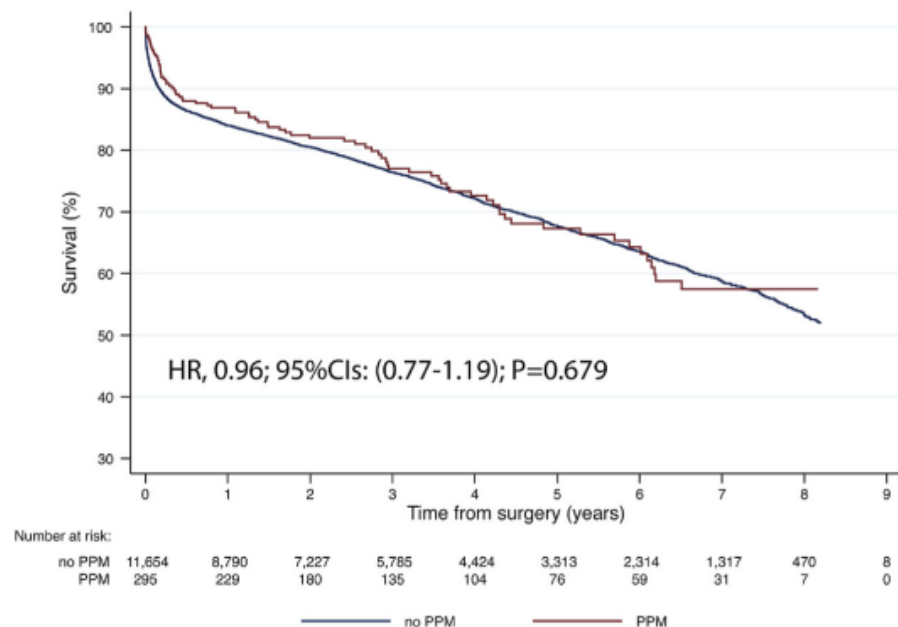
2024. 10. 31 (Thu) - 11. 01 (Fri) 여수 엑스포 컨벤션센터



Permanent pacemaker implantation
after mitral valve surgery
with Maze operation:
A nationwide population-based study

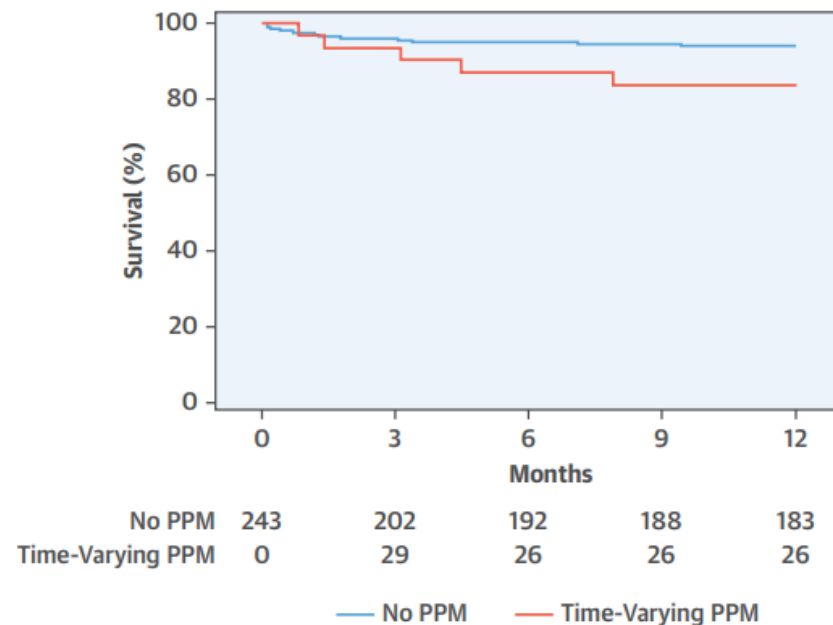
Purpose

Permanent pacemaker implantation after valve and arrhythmia surgery in patients with preoperative atrial fibrillation



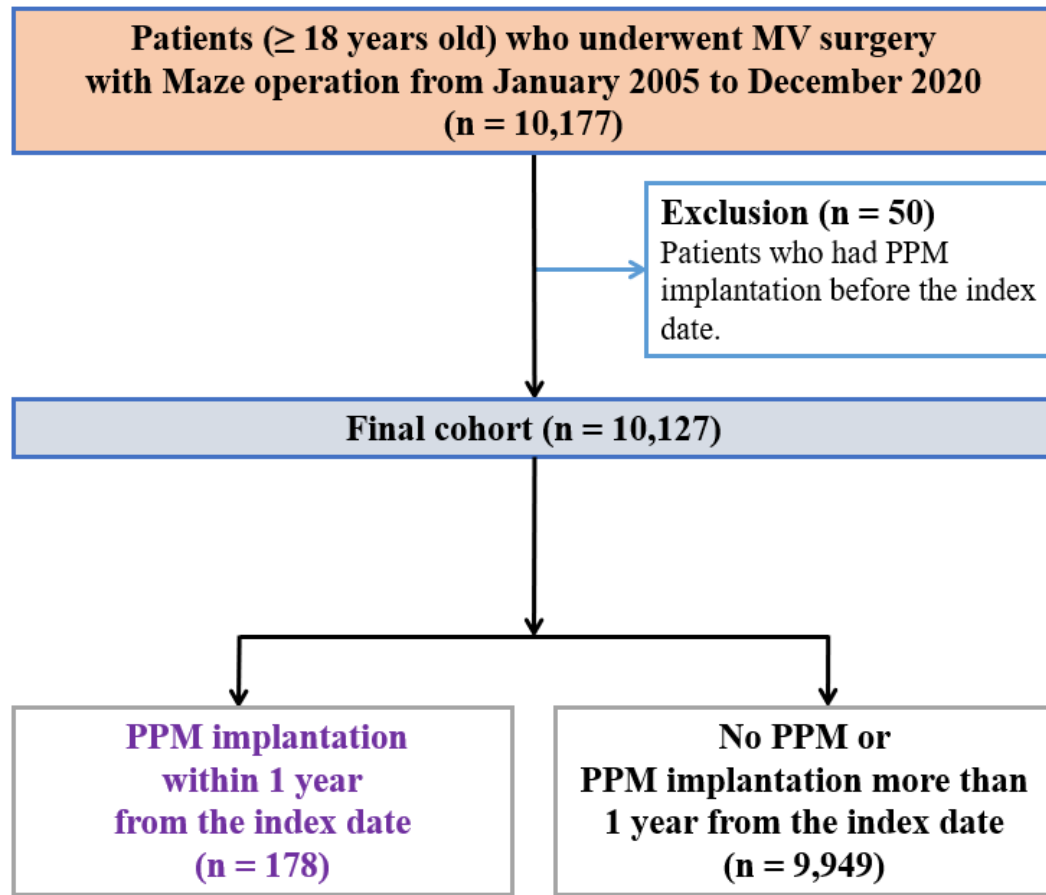
Kowalewski et al. Heart Rhythm 2022

Pacemaker Implantation After Mitral Valve Surgery With Atrial Fibrillation Ablation



DeRose et al. J Am Coll Cardiol 2019

- To identify risk factors and outcomes associated with permanent pacemaker (PPM) implantation in patients who underwent mitral valve (MV) surgery with Maze operation



- National Health Insurance Service (NHIS)
- Index date: Date of surgery

- Primary outcome
 - Overall mortality
- Secondary outcome
 - Risk factor of PPM implantation
 - Logistic regression analysis
 - Risk factors of overall mortality, infective endocarditis, and stroke
 - Cox proportional hazards regression analysis

	Total (n = 10,127)	PPM within 1 year (n = 178)	No PPM or after more than 1 year (n = 9,949)	p value
Age (median, IQR) (year)	61.0 (52.0–69.0)	65.0 (58.0–70.0)	61.0 (52.0–68.0)	< 0.001
Female (%)	56.9	64.6	56.8	0.039
Comorbidities (%)				
Hypertension	87.7	93.3	87.6	0.021
Diabetes mellitus	55.0	65.7	54.9	0.004
Dyslipidemia	78.4	80.9	78.4	0.463
Brain hemorrhage	2.5	3.4	2.4	0.455
Stroke	21.6	27.5	21.5	0.054
Transient ischemic attack	7.0	7.3	7.0	0.768
Smoking (%)				0.016
Ex-smoker	17.0	12.4	17.1	
Current smoker	11.8	4.8	11.9	
Pathology (%)				
Mitral regurgitation	40.2	38.8	40.2	0.758
Infective endocarditis	3.3	2.8	3.3	> 0.999
CHA2DS2-VASc score (median, IQR)	4 (3–5)	5 (3–6)	4 (3–5)	< 0.001
Charlson comorbidity index score (median, IQR)	4 (2–6)	4 (3–6)	4 (2–6)	0.013
Duration of atrial fibrillation (median, IQR) (year)	1.4 (0.1–5.9)	4.5 (0.4–10.1)	1.4 (0.1–5.8)	< 0.001

	Total (n = 10,127)	PPM within 1 year (n = 178)	No PPM or after more than 1 year (n = 9,949)	p value
Intraoperative (%)				
Mitral valve repair	31.3	33.7	31.3	0.514
Outcomes (%)				
Death	20.5	21.4	20.5	0.779
Infective endocarditis	4.7	8.4	4.6	0.029
Stroke	10.6	14.6	10.5	0.084

■ Risk factor of PPM implantation

	Adjusted OR	95% CI	p value
Age	1.034	1.007–1.061	0.013
Female	1.387	0.870–2.211	0.170
CHA2DS2-VASc score	0.918	0.654–1.290	0.622
Charlson comorbidity index	0.952	0.886–1.023	0.182

■ Risk factor of overall mortality

	Adjusted HR	95% CI	p value
PPM implantation	0.901	0.653–1.243	0.524
Age	1.063	1.054–1.072	< 0.001
Female	0.655	0.571–0.751	< 0.001
Dyslipidemia	0.719	0.642–0.806	< 0.001
CHA2DS2-VASc score	1.204	1.085–1.336	< 0.001
Charlson comorbidity index	1.084	1.061–1.107	< 0.001

■ Risk factor of infective endocarditis

	Adjusted HR	95% CI	p value
PPM implantation	2.038	1.214–3.422	0.007
Age	1.029	1.015–1.044	< 0.001
Female	0.546	0.412–0.723	< 0.001
Dyslipidemia	1.233	0.977–1.555	0.078
CHA2DS2-VASc score	1.252	1.013–1.547	0.038
Charlson comorbidity index	1.016	0.967–1.068	0.530

■ Risk factor of stroke

	Adjusted HR	95% CI	p value
PPM implantation	1.411	0.954–2.087	0.085
Age	1.046	1.037–1.055	< 0.001
Dyslipidemia	1.155	0.986–1.353	0.074
CHA2DS2-VASc score	0.977	0.889–1.043	0.625
Charlson comorbidity index	1.029	0.997–1.063	0.079

- In patients with preoperative atrial fibrillation, even when Maze operation is combined with MV surgery, the incidence of postoperative PPM implantation is low.
- PPM implantation following MV surgery and Maze operation did not significantly affect overall mortality.
- However, it was associated with an increased risk of infective endocarditis.