Medical and Research Publications
International Open Access

Research Article **Journal of MAR Cardiology (Volume 4 Issue 4)**

Efficacy and Safety of Temporary Permanent Pacemaker: A Single-Center Experience.

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Received Date: May 28, 2022

Published Date: June 10, 2022

Background

Temporary cardiac pacing is commonly indicated for the treatment of symptomatic bradycardia and various types of reversible symptomatic heart block. Conventional transvenous temporary cardiac pacing therapy is widely used. This technique is associated with a number of limitations and complications, compared to permanent pacing system.

The aim of our study was to identify the indications, complications, and outcomes of transvenous semi-permanent pacing.

Methods

A retrospective study was conducted in our cardiology department from 2017 to 2019. We investigated semi-permanent transvenous pacing systems consisting of one bipolar active fixation pacing leads and an attached epicutaneous pulse generator. Were included all patients presenting symptomatic heart block potentially reversible or in a context of severe infection, and patients hospitalized for alcohol septal ablation.

Study population

We carried out this study both to see the feasibility, the results, and the safety. There are many acute pathologies that lead to conductive disorders that require electro systolic training for several days or even several weeks, including myocardial infarction, myocarditis, and especially post-TAVI

Study population

Population ECG	Middle age	Hypertension	Diabètes	Cardiomyopathy	Traitement	Etiology
Atrio ventricular block (9pt)	63	6	6	Ischemic (5). Hypertrophic (4)	ACE, Dihydropyridine	ACS (5) Septal embolization (4)
Sinus dysfonction (6Pt)	72	4	4	Ischemic (2) Non Ischemic cardiopathy (3) Hypertension (1)	ACE, diuretic, betabloker	ACS(2) Myocarditis(3) Hyperkalemia (1)
Bradyarrhythmia (3pt).	75	3	2	Hypertension (2) Ischemic (1)	ACE, Betabloker ,DOA	Infection(2). Hyperkalemia (1)

Results

A total of 18 patients were implanted, aged between 47 and 92 years. Seven were enrolled for STEMI with symptomatic atrioventricular block, 4 for alcohol septal ablation for hypertrophic cardiomyopathy, 1 for hyperkaliemia, 1 for myocarditis with atrioventricular block and 5 for symptomatic sinus bradycardia or atrioventricular block with infection circumstances (myocarditis and other infection). The venous access was sub clavicular in 17 patients (94%) and internal jugular in just 1 patient. After a median follow-up of 14,5 +/- 9,63 months, the total duration of hospital stay was 13,5 +/- 10,14 days. The duration of temporary pacing was 10 ± 6, 27 days. A total of 12 patients (67%) were definitively implanted of dual chamber pacemaker (75%), cardio resynchronization therapy pacemaker (17%) or defibrillator (8%). One patient died with the semi-permanent pacing system in situ. No major or minor intraoperative or postoperative complication occurred.

Discussion

This simple technique allows many advantages:

- Longer stimulation duration.
- Avoids infectious problems if definitive implantation with PM.
- Avoids phlebitis and all complications related to decubitus.
- This therapeutic approach is interesting especially in TAVI. Between 8to30 % of patients requiring TAVI complicated by different degrees of atrio ventricular bloc need implantation of PM. However only 30 % of patients have to be stimulated after one month. We know that the stimulation worsens their prognosis. Because the current evolution of TAVI to be indicated in youngers patients it makes the implantation of the PM problematic if it is not really necessary, that's why temporary pacing stimulation seems.

The limitation of this work are:

- The limited number of patients (we continue to proceed in this way to enrich our experience)
- It's monocentric and retrospective.

Conclusion

Temporary permanent pacemaker with bipolar active fixation leads and epicutaneous

Pulse generators provide a cost effectiveness option for prolonged temporary pacing as a bridge to permanent system implantation or recovery.