

# IBUTILIDE CARDIOVERSION FOR LONG STANDING PERSISTENT ATRIAL FIBRILLATION IN POST OPERATIVE RHEUMATIC HEART DISEASE

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## INTRODUCTION

Long standing persistent atrial fibrillation (AF) in post-operative rheumatic heart disease (RHD) without residual valvular lesion may require restoration of sinus rhythm when quality of life and ventricular function progressively decline even after adequate rate control. Ibutilide has emerged as an effective agent for pharmacological conversion of AF. Its rapid and high conversion rate may avoid electrical cardioversion. It is known to reduce defibrillation threshold. The data regarding the efficacy of ibutilide in RHD is scarce.

## METHODS AND RESULTS

- A **prospective study** of 21 such patients.
- **Exclusion criteria:** Hemodynamically significant valvular lesions, severe LV dysfunction (EF < 25%), intracardiac clot and baseline QTc >480ms.
- **Cardioversion protocol:** Prophylactically one gram of magnesium was administered intravenously. If INR was less than 2, I.V. 5000U of heparin administered. An infusion containing 10 ml ibutilide solution (0.1 mg/ml of ibutilide) and 40 ml of 5% dextrose was given through a peripheral vein over 10 minutes. Another similar dose of ibutilide was administered if cardioversion was not achieved within 10 minutes.
- **Primary end point** was conversion of AF to sinus rhythm within 90 minutes.
- **Secondary end points** included adverse events (Bradycardia, QT prolongation, ventricular arrhythmias, stroke and death), ventricular rate in nonconverters, transformation to AFL and need for electrical cardioversion.
- If pharmacological cardioversion failed, DC cardioversion beginning with 50J was performed. The QTc was continuously monitored and specifically just before successful cardioversion, at the 10<sup>th</sup> and 90<sup>th</sup> minute and 4<sup>th</sup> hour of infusion. Patients were observed for 4 hours in intensive care unit.

The patient characteristics is shown below.

Sex	No. of patients(%)	Mean age	51.3±10.1 years
		Mean LVEF	46±11.7%
		Mean LA size	47.8±4.3 mm
Male	12 (57%)	Duration of AF	16 to 28 months
Female	9 (43%)	Average ventricular rate	82 to 120 bpm

Surgery	No. of patients(%)	Drugs	No. of patients(%)
MVR	10 (47.6%)	Beta blockers	18 (85.7%)
MVR+AVR	5 (23.8%)	Amiodarone	5 (23.8%)
MVR+CABG	3 (14.2%)	Digoxin	12 (57.1%)
MVR+AVR+CABG	1 (4.7%)	Calcium channel blockers	2 (9.7%)
MVR+TVR	1 (4.7%)		

Acute successful ibutilide cardioversion was seen in 12(57.1%) patients, 7(33.3%) with first dose and 5(35.7%) with second dose. Nine (42.9%) patients were cardioverted with 50J DC shock under intravenous sedation. Two patients required additional 100J DC shock. Two (9.52%) patients had short runs of TdP. One patient had AF recurrence during the observation period. No stroke or death observed.

ECG Parameters	Pre Ibutilide	Post Ibutilide
QRS(ms)	91.2±13.4	94±15.8
QTc(ms)	425.4±66	538.3±79

QTc and QRS duration before and after 20 minutes of ibutilide infusion for converters

ECG Parameters	Pre Ibutilide	Post Ibutilide
QRS(ms)	90.3±14.3	95±18.8
QTc(ms)	430.3±59	541.3±82

QTc and QRS duration before and after 20 minutes of ibutilide infusion for non converters

ECG Parameters	Pre Ibutilide	Post Ibutilide
QRS(ms)	92.3±17.5	93.1±13.7
QTc(ms)	425.4±66	447.3±55

QTc and QRS duration before and after 4 hour of ibutilide infusion for overall

## CONCLUSION

Ibutilide is a safe and an effective option when restoration of sinus rhythm is considered before electrical cardioversion even in long standing persistent AF in post-operative RHD.