IBUTILIDE CARDIOVERSION FOR RECENT ONSET ATRIAL FIBRILLATION IN ISCHEMIC CARDIOMYOPATHY

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INTRODUCTION

Atrial fibrillation (AF) is the most common arrythmia and accounts for frequent emergency visit and hospitalization. Pharmacological cardioversion with ibutilide is effective and obviates the need for sedation but carries small risk of QT prolongation with attendant Torsades de pointes (TdP). Electrical cardioversion is effective but associated with logistic issue and its own complications. However, the data regarding the efficacy of Ibutilide in recent onset AF in ischemic cardiomyopathy is scarce.

METHODS AND RESULTS

Aims and Objectives: Acute success and adverse events of ibutilide pharmacological cardioversion in recent onset AF in ischemic cardiomyopathy.

Study Type and population: Observational study of 55 cases of CAD with ejection fraction ≤40%.

Exclusion criteria: Hemodynamically significant valvular lesions, cardiogenic shock or requiring intubation, severe LV dysfunction (EF < 25%), intracardiac clot and baseline QTc >480ms were excluded.

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 40ml of 5% dextrose was given through a peripheral vein over 10 minutes. Same dose of ibutilide was administered if cardioversion was not achieved within 10 minutes.

Primary end point: Conversion of AF to sinus rhythm within 90 minutes.

Secondary end points: Adverse events (Bradycardia, QT prolongation, ventricular arrhythmias, stroke and death), ventricular rate, transformation to atrial flutter (AFL) and need for electrical cardioversion. If cardioversion failed, DC cardioversion beginning with 50J was performed.

The QTc was continuously monitored and documented before successful cardioversion, at the 10^{th} and 90^{th} minute and 4^{th} hour of infusion. Patients were observed for 4 hours closely.

The patient's baseline characteristics are shown in the following tables.

SEX	No. of patients
Male	34(61.8%)
Female	21(38.18)

Drugs	No. of patients
Beta blockers	46 (83.6%)
Amiodarone	8 (14.5%)
Digoxin	12 (21.1%)

Age	60.7±16.3 years
LVEF	32±11.7%
CHA_2DS_2VASc score	2.4±1.4

Co morbidities	No. of patients
Diabetes	28(50.1%)
Hypertension	12(21.8%)
COPD	24(43.6%)

The palpitation was the predominant symptom. Acute successful cardioversion was seen in 39(70.9%) patients, 26(47.2%) with first dose and 13(13 out of 16) with second dose. Thirteen (29.1%) patients were cardioverted with 100J DC shock under intravenous sedation. Mean QRS duration and QTc before and after ibutilide infusion are shown in below table.

ECG Parameters	Pre Ibutilide	Post Ibutilide
QRS(ms)	130.5±23.4	132.3±24.2
QTc(ms)	416.1±68.2	562.4.2±71.5

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

ECG Parameters	Pre Ibutilide	Post Ibutilide
QRS(ms)	131.4±14.3	133.2±18.8
QTc(ms)	422.3±59	553.3±82

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

ECG Parameters	Pre Ibutilide	Post Ibutilide
QRS(ms)	129.2±17.5	131.6±13.7
QTc(ms)	418.4±66	420.3±55

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

Three (5.5%) patients had short runs of TdP. One patient had AF recurrence during the observation period. No stroke or death observed.

CONCLUSION

Ibutilide is a safe and an effective option when restoration of sinus rhythm is considered before electrical cardioversion. Patients with prolonged QTc should be observed closely for adverse events.