



Case Report

Is "Pill in Pocket" safe for Paroxysmal AF : A Case Report of flecainide overdose

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Abstract

We report a case of Paroxysmal atrial flutter on Flecainide on "Pill in a Pocket" treatment, presented with symptomatic sinus pauses with hypotension in Emergency Room following two episodes of tachycardia. Flecainide overdose side effects were managed conservatively. "Pill in the Pocket" for management of paroxysmal Atrial Fibrillation/Flutter can be used provided safety precautions are observed. (Indian J Cardiol 2022;25 (1-2):54-57)

Introduction

Atrial fibrillation (AF) is the most common arrhythmia in clinical practice and its prevalence is increasing. Over the last 25 years, flecainide a class IC Anti Arrhythmic Drug (AAD), has been used extensively worldwide, and its capacity in restoration of sinus rhythm (SR) and in reducing AF symptoms, has been well documented. The increased mortality seen in patients treated with flecainide in the Cardiac Arrhythmia Suppression Trial (CAST)¹, published 3 decades ago, still deters many clinicians from using flecainide and denying its benefit in AF patients, a valuable treatment option. Flecainide has a favourable safety profile in supraventricular tachycardia and in paroxysmal Atrial Flutter and Fibrillation (AF) patients, with no left ventricular dysfunction and coexistent Coronary Artery Disease (CAD) or significant structural heart disease. Vaughn William Class IC agents have been used in paroxysmal Atrial Fibrillation, either on daily basis and/or as "Pill in Pocket" (PIP) strategy effectively². We present a case report with possible Flecainide overdose, it reflects on caution in use of this approach safely.

Case report

A 64 years old Indian male patient, a known case of symptomatic recurrent Paroxysmal atrial Fibrillation and Flutter with co morbidities of hypertension and mild mitral valve disease in NYHA class II was on flecainide and had taken "Pill in Pocket" dose, twice within a day. He presented to Emergency Room(ER) in an ambulance with significant agitations, disorientation and near syncope. ECG monitor showed periods of asystole of more than 3 seconds with normal width QRS and erratic rhythm at slow ventricular rate and with atypical fine atrial flutter waves.

His past history included multiple admissions for pharmacological and electrical cardioversion for AF. His Medications included warfarin, Olmesartan, atenolol, flecainide 100 mg BD, x and flecainide 300 mg as "pill in pocket" in case of palpitation with extremely fast and irregular heart rate. For his Bradycardia Atropine 1 mg was given, External Transcutaneous pacemaker lead was placed bed side in emergency room but both remained ineffective. Intravenous epinephrine 1/1000 dilution, 100 ugm. bolus was given, which resulted Ventricular Tachycardia at fast rate with hemodynamic



Fig. 1 : ECG on admission with severe ventricular bradycardia with narrow QRS and fine atypical flutter waves.



Fig. 2 : ECG after Epinephrine counteracting bradycardia; slow atrial rate Atrial Flutter

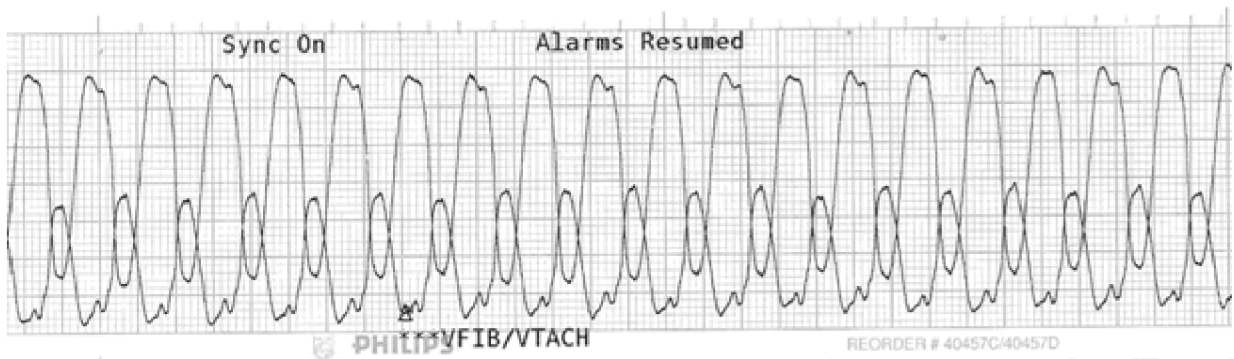


Fig. 3 : ECG : Tachycardia post Epinephrine with hypotension



Fig. 4 : ECG Normal sinus rhythm after complete recovery

compromise, requiring D.C. Cardioversion. The temporary pacemaker was later repositioned in right ventricle, in Cath Lab. Immediate hemodynamic stabilization was observed. All negative chronotropic medications, atenolol (Betablocker) and flecainide (Class IC agent) were stopped.

Soda bi carb and normal saline infusion were given in an attempt to counteract the flecainide induced decreased Sodium influx in cardiac tissues, which was adversely affecting automaticity and also for the faster excretion of medication through kidneys. Beta adrenergic stimulant epinephrine in low dose infusion was continued to improve automaticity and BP. His Arterial Blood Gas (ABG) confirmed no acidosis & blood chemistry was within normal range including normal serum creatinine, sodium and potassium levels. Serum flecainide assessment facility was not available in the hospital laboratory, hence not done, as such it has limited role in emergency management³. Pacing rate later was kept at 50/min on ventricular demand mode. Restoration of normal sinus rhythm at 60/min occurred within 6 hours. The following day spontaneous rhythm was evaluated by overdrive ventricular pacing at 120/min for 1 min. and sudden halt of pacing, which resulted in symptomatic pause of more than 3 seconds, "a modified SNRT (Sinus Node Recovery Time)". On day two there was no post pacing pause, suggestive of no residual toxic side effects on cardiac conduction after 54 hours more than two half-lives of flecainide, then temporary pacemaker lead was removed safely.

Discussion

Flecainide acetate has local anaesthetic effect and belongs to Vaughn William class 1C Anti-Arrhythmic Drug (AAD) that blocks sodium influx during Phase 1 of Action potential. Increase in Atrial

Refractory Period leads to reduced atrial rate prior to restoration of sinus rhythm in AF. Flecainide overdose widens the QRS complex without adversely affecting A-V nodal conduction³⁴. Flecainide undergoes extensive hepatic biotransformation via cytochrome P450 CYP2D6; 85% of inactive metabolites are excreted mostly in urine with elimination half-life is 12-27 hrs⁵. Class IC AAD have been used successfully in medical cardioversion of Paroxysmal Atrial Fibrillation of less than 48 hours duration with conversion rate of 52-95%⁶. The approach of "Pill in Pocket"(PIP) seems to be logical and impressive, not only as an effective treatment but also cost effective in reducing hospitalization⁷. European Society of Cardiology(ESC) guidelines advocated precautionary use of first dose in hospital for use of "PIP" prior to its out patients basis, to reduce the chances of systemic embolization as well as strokes⁸. Flecainide accumulation to toxic levels resulted in ventricular Proarrhythmia, excessive increases in QRS duration with monomorphic sinusoidal wave tachycardia, polymorphic ventricular tachycardia, fibrillation, Torsade de Pointes have been treated by fat emulsion, Cardio pulmonary circulatory support and ECMO (Extra Corporeal Myocardial Oxygenation)^{9,10,11}. Severe sinus bradycardia, asystole, though not common, but have been reported as the side effect and have been managed by pharmacodynamic support of Sodium Bi carbonate (NaHCO₃) & normal saline infusion¹². In our case, patient was clearly instructed to use pill in pocket 300 mg dose once and in case of no response or recurrence he should be seen in the nearest hospital but unfortunately, after second recurrence within 16 hours, he repeated 'PIP', which precipitated the overdose. There were no widening of QRS, suggesting probably overdose but not toxicity of flecainide acetate, hence responded quickly after restoration of heart rate with pacing with improvement in BP. Sodium overload and pacing

was required only, till excretion of the metabolites beyond two elimination half-life of Flecainide, transient minimal inotropic support without any need circulatory support.

Learning points

The safety of "PIP" can be increased by its use in;

1. Selected patients, with multiple recurrence of AF/AFL, which allows patient to understand the symptoms and to correlate with documented ECG on devices, watches or in clinics.
2. Where patient and care giver clearly understand the risks and benefits of the "PIP" treatment and the back-up plan in failure of treatment.
3. Patients with known contraindications to Class 1C agents have been excluded, i.e. Heart failure, Coronary Artery and other significant structural heart disease, Electrolyte imbalance, renal or liver failure.
4. Not to repeat "Pill in Pocket" within 24 hours and in case of early recurrence but to report to ER.
5. Avoid patients who are already on medications with known interactions.
6. "PIP" to be used on its own and avoided in patients on chronic Flecainide administration.

Conclusions

The overdose of Flecainide presenting with bradycardia and narrow QRS can be treated by pacing support and Soda bi carb, while fat emulsion therapy and circulatory support with ECMO, be reserved for severe toxicity recognized by wide QRS, sinusoidal VT, Torsade de Pointes. Atrial fibrillation is a 'ticking bomb'. The increasing prevalence of AF may result in an embolic episode including ischaemic stroke with a major impact on patients Quality of Life (QOL). Early detection and aggressive treatment can break

the vicious circle, where 'AF begets AF' thus "Pill in Pocket" is an effective treatment strategy in patients with Paroxysmal Atrial Fibrillation and Atrial Flutter, provided prescribed with safety precautions.

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