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Case Report

A RARE CASE OF AMIODARONE INDUCED ANAPHYLACTIC SHOCK

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ABSTRACT

This is a case report of 40 years old male who came to our hospital emergency room (ER) with history of palpitations. On examination patient had pulse rate of 142 beats per minute, irregularly irregular with low volume, ECG (electrocardiogram) showed features of atrial fibrillation. Patient was diagnosed to having lone atrial fibrillation with fast ventricular rate. Amiodarone 5mg/ kg IV over 30 minutes was started. After 10 minutes of initiation the ECG showed sinus rhythm but patient had anaphylactic reaction. Blood pressure was not recordable. Diagnosed to be having Amiodarone induced anaphylaxis, hence Amiodarone infusion was stopped. Managed with intravenous fluids, subcutaneous adrenalin, hydrocortisone and noradrenalin infusion. Patient recovered well and discharged home on third day. This case report highlights about a rare case of Amiodarone induced anaphylaxis.

Key words: Amiodarone, Atrial fibrillation, Anaphylaxis, Arrhythmia.

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INTRODUCTION

Amiodarone is a broad spectrum antiarrhythmic drug. The toxicity associated with Amiodarone use depends upon duration and dosage used. Amiodarone induced anaphylaxis is a very rare condition. History of previous drug allergy and monitoring the patient during infusion can help in successful management of these patients.

CASE REPORT

A 40 year old male, without any known systemic illness came to our hospital emergency room (ER) with history of palpitations since two hours. Not associated with breathlessness, chest pain, sweating, fever and cough. On examination, patient was conscious, orientated and coherent. Pulse rate – 142 beats per minute, irregularly irregular with low volume, Blood pressure of 90/42 mmhg, oxygen saturation of 92 % on room air which increased to 100% with 6 liters oxygen per minute, afebrile and GRBS of 108 mg/dl. ECG (electrocardiogram) was taken in ER which showed features of atrial fibrillation. 2D Transthorcic Echo was done which revealed normal left ventricular function. Routine blood investigation showed hemoglobin of 11.4 gm/ dl, total leucocyte counts of 4,500 cells/ cumm, RFT, LFT, PT, INR, APTT and serum electrolytes were all normal. Chest X-ray was unremarkable. Patient was diagnosed to having lone atrial fibrillation with fast ventricular rate (figure-1). Plan was to give Amiodarone bolus followed by infusion. Amiodarone 5mg/ kg IV over 30 minutes was started. After 10 minutes of initiation the ECG showed sinus rhythm (Figure- 2), but patient complained of giddiness, breathlessness and itching all over the body. Blood pressure was not recordable. Immediately Amiodarone induced anaphylaxis was

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suspected and hence infusion was stopped. Resuscitated dilution (subcutaneous), intravenous hydrocortisone 100mg and nor adrenaline infusion. Blood pressure stabilized within two hours. Later vasopressor was tapered with IV fluids and managed with adrenaline 1 in 10,000 and stopped. Patient was shifted to ward on second day and discharged home on third day with 50 mg metoprolol once daily.

Fig 1. Electrocardiogram of our patient showing features of atrial fibrillation.

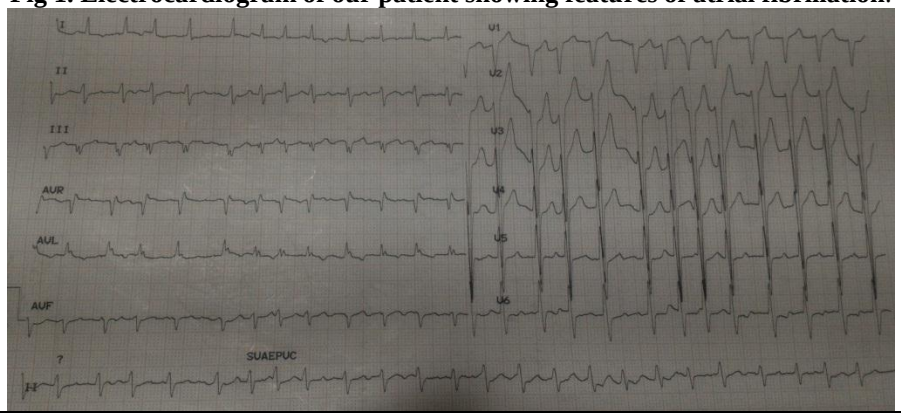
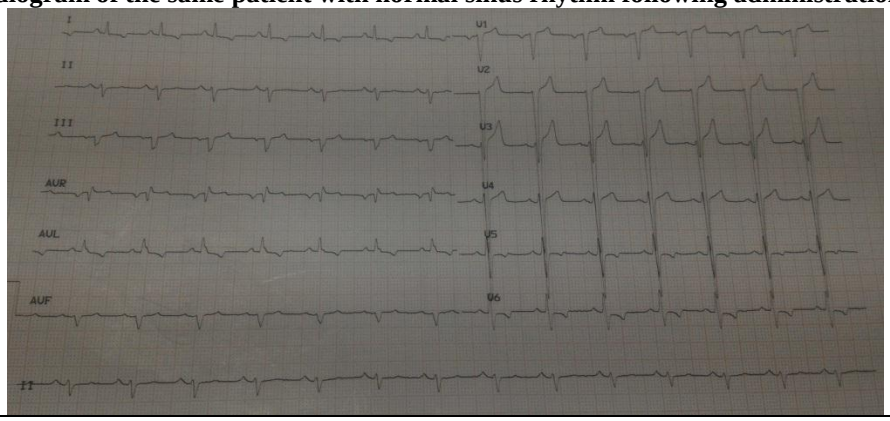


Fig 2. Electrocardiogram of the same patient with normal sinus rhythm following administration of Amiodarone.



DISCUSSION

Amiodarone is a complex antiarrhythmic agent labeled under the category of class 3 antiarrhythmic drugs, used for treatment of supraventricular and ventricular arrhythmias.

It is made up of iodine containing compound with structure similar to thyroxin. Iodine content of Amiodarone may be associated with anaphylactoid reactions [1]. Polyoxyethylene sorbitan-20-monooleate used in the preparation of Amiodarone can be one of the reasons for anaphylaxis. Bioavailability varies from 22-95% [2]. Highly lipid soluble, following administration high concentration is seen at fat, muscle, skin, lungs and liver. It's excreted even in breast milk. Elimination half life is about 58 days due to slow release from lipid rich tissues. Desethylamiodarone (DEA), the metabolite of Amiodarone has antiarrhythmic properties. Conversion of Amiodarone to its active metabolite can be inhibited if taken along with grape juice [3].

Amiodarone has multiple mechanism of action, such as prolongation of qt interval, slowing heart rate and AV nodal conduction and prolongs refractoriness.

It is used in the management of acute ventricular arrhythmias and also used for secondary prevention of life threatening ventricular arrhythmias in patients who have sustained ventricular arrhythmias with LV dysfunction (chronic treatment).

Adverse effects depend upon dosage and duration of treatment. Higher dosage and longer duration of treatment can cause more complications. It can involve lungs, liver, skin, eyes and nerves [4]. Anaphylactic shock is a rare condition [5] and it can be confirmed using biomarkers such as tryptase, histamine and Ig-E levels.

About 75% of patients will have side effects in 5 year treatment period and 18-35% patients stop the treatment due to side effects [6]. Most common side effect of intravenous Amiodarone is hypotension [7].

Drug interaction occurs due to inhibition of hepatic and renal metabolism of many drugs. It increases the plasma concentration of dioxin, warfarin, digoxin,

simvastatin, sildenafil and antidepressants. Additive effects seen with antiarrhythmic agents (quinidine, disopyramide, flecainide, propafenone, dofetilide) and quinolones.

Amiodarone can be administered either intravenous or oral route. For intravenous route, loading dose of 5 mg/ kg (over 30 minutes) followed by infusion of 1mg/ kg for 6 hours and 0.5 mg/ kg for 18 hours will be given. Oral treatment requires up to 800- 1600 mg/day in divided doses until a total of 10gm has been given, followed by 200-400mg/ day. Oral treatment requires two weeks or more to get the desired effect. Patients receiving Amiodarone should be monitored for its systemic toxicity, drug interactions and its pharmacological effects.

Treatment for Amiodarone induced anaphylaxis is usually supportive. Immediately Amiodarone infusion should be stopped. Rest of the treatment depends upon the oxygenation and hemodynamic status of the patient such as mechanical ventilation, inotropic support, subcutaneous adrenaline, intravenous fluids and antihistamines.

Anaphylaxis is a rare complication of Amiodarone; this fatal complication should be kept in mind. History of previous allergy to any drugs, iodine compounds or iodinated contrast material should be asked before administering Amiodarone. Early identification and treatment of anaphylaxis reaction can reduce morbidity and mortality.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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