



Case Report

JMR 2015; 1(4): 110-111
July- August
ISSN: 2395-7565
© 2015, All rights reserved
www.medicinearticle.com

Radio contrast dye induced anaphylactoid reaction : A case report

Amit D.Sharma*¹, B M Sattigeri², Ervilla Dass³

¹ Third year resident, Department of Pharmacology, SBKS Medical Institute & Research Centre, Vadidara-391760, India

² Professor and Head, Department of Pharmacology, SBKS Medical Institute & Research Centre, Vadidara-391760, India

³ Assistant Professor, Department of Pharmacology, SBKS Medical Institute & Research Centre, Vadidara-391760, India

Abstract

Any medication used for diagnosis, prophylaxis or treatment of the patient is capable of producing an adverse reaction. Allergy is the most common unexpected adverse reaction; encountered with antibiotics, salicylates, ACE (angiotensin converting enzyme) inhibitors and radio-contrast materials. Combination of Diatrizoate Meglumine and Diatrizoate Sodium is the iodinated contrast media; widely used as contrast enhancing agent in various radiological procedures. Hypersensitivity and thromboembolic events are the most commonly encountered adverse reactions of this media. Anaphylactoid reaction is the serious medical emergency with rapid development of symptoms within 5-30 minutes ranging from urticaria, dizziness, bronchospasm up to hypovolemic shock. It is caused by allergens which directly lead degranulation of mast cells and basophils without Immunoglobulin-E involvement. Here, we report a case of anaphylactoid reaction induced by iodinated radio-contrast dye Diatrizoate Meglumine and Diatrizoate Sodium in a 50 years old female patient. Rigorous treatment with epinephrine, corticosteroids and antihistaminics helped in recovery of the patient. The case is being reported to bring attention of the medical fraternity towards importance of sound pharmaco-vigilance and prepare them to with efficient preventive measures before administration of drugs. This case can also provide a vital data regarding adverse drug reaction reporting.

Keywords: Adverse drug reaction, Anaphylactoid reaction, Diatrizoate Meglumine /diatrizoate sodium, Pharmaco-vigilance.

INTRODUCTION

Iodinated radio-contrast media (Diatrizoate sodium/ diatrizoate meglumine) is used as contrast enhancing agent in various radiological procedures like aortography, computed tomography, excretory urography, digital subtraction angiography and peripheral arteriography. Approximately 75 million doses of iodinated contrast agents are given worldwide each year ^[1]. Hypersensitivity and thromboembolic events are the most commonly encountered adverse reactions of this media. The incidence of severe hypersensitivity reactions to intravascular administration of contrast media is rare, with a rate of about 0.03%-0.16% ^[2, 3]. However the widespread use of the agent demands awareness regarding the adverse reaction. We present here a case of hypersensitivity reaction due to the radio contrast dye Urovison-Diatrizoate Meglumine/Diatrizoate Sodium injection.

CASE REPORT

A 50 years female patient came to surgical outpatient department of tertiary care rural teaching hospital on 18 June, 2014 with complaint of acute pain in right side of abdomen since one day. She underwent ultrasonography of abdomen and was suspected of liver abscess. To reconfirm the diagnosis, she was advised contrast enhanced computed tomography of abdomen. For this procedure, she was given iodinated radio-contrast dye (Urovison-Diatrizoate Meglumine/Diatrizoate Sodium injection USP) by intravenous route. 5 minutes after administration of radio-contrast media, she suffered with shivering, drowsiness, redness and oedema over face and chest, breathlessness, altered sensorium with cold extremities.

On examination, her heart rate was 98/min, peripheries were cold and no peripheral pulsations were felt in feet. Blood pressure was not recordable and oxygen saturation (SpO₂) was not showing on monitor.

Immediately, she was given injection hydrocortisone hemisuccinate, injection ondansetron injection,

*Corresponding author:

Dr. Amit D.Sharma

Third year resident, Department of Pharmacology, SBKS Medical Institute & Research Centre, Vadidara-391760, India

pheniramine maleate injection and 2 pints of dextrose normal saline following which most of her symptoms subsided. Although patient was still drowsy, she was arousable and responded sluggishly to verbal command. Patient then shifted to intensive care unit where patient was given injection adrenaline (1:10000) 0.5cc subcutaneously, injection hydrocortisone 500 mg intravenously, injection pheniramine maleate 1cc intravenously, injection normal saline at the rate of 300 ml/hour along with injection noradrenaline infusion at the rate of 10 ml/hour.

Later patient was put on injection hydrocortisone 100 mg intravenously 8 hourly, tablet pheniramine maleate 25 mg three times a day, intravenous normal saline with 1 ampoule of injection multivitamin at rate of 100 ml/hour, injection noradrenaline infusion at 3ml/hour according to blood pressure, injection pantoprazole 40 mg intravenous twice a day and injection ondansetron intravenously (sos). On third day, she was haemodynamically stable without any complaints and was discharged.

On follow-up visit after 5 days, patient had no complaints. The patient was given "alert card", mentioning about various medications which were to be avoided.

DISCUSSION

Iodinated contrast media are the most commonly used injectable agents in radiology for almost any part of the body. Although intravenous administration is most commonly used for administration of iodinated contrast media; intra-arterial, intra-theal and intra-abdominal routes are also available. Depend on their plasma osmolality; the contrast media are further categorized as high-osmolality (diatrizoate, metrizoate isopaque), low-osmolality (ioxaglate, iopamidol, iohexol) and iso-osmolality (iodixanol) contrast media.

Osmolality of high-osmolality contrast media (HOCM) is 5–8 times; low-osmolality contrast media (LOCM) is 2–3 times and iso-osmolar radio-contrast media is same as that of plasma^[4]. In comparison to low-osmolality contrast media, high-osmolality contrast media is much responsible for mild and moderate type of reactions. In case of anaphylactoid reactions, HOCM is the main causative factor; while cardiovascular complications are mostly caused by LOCM^[4, 5].

Here, the patient presented with symptoms typical of anaphylactic reaction. However, the patient had no previous exposure to the radio-contrast media and the immediate nature of reaction is typical of anaphylactoid reaction, additionally, such dyes are known to cause anaphylactoid reactions. Activation of complement system and release of inflammatory mediators like histamine, prostaglandins, serotonin, leukotrienes can be considered as important mechanisms for this type of reactions^[4, 6].

These are one of the most common type of adverse reactions which are although serious, they are occasionally fatal. They are mostly associated with asthma, cardiovascular and renal disease as well as individuals on betablockers. Following 20 minutes of injection irrelevant to the dose of contrast agent, sudden emotional outburst like apprehension, anxiety, fear can also contribute to this type of reaction^[4].

The symptomatology of anaphylactoid reactions is classified into mild (rash, itching, nasal discharge, nausea and vomiting), moderate (aggravation of mild symptoms, facial edema, laryngeal edema, bronchospasm, dyspnoea, tachycardia, or bradycardia), and severe (life-threatening arrhythmias, hypotension, overt bronchospasm, laryngeal oedema, pulmonary oedema, syncope and death)^[2, 7].

Although the distinction between anaphylactic and anaphylactoid reactions are elusive, those significant with the use of iodinated contrast media include:^[8]

1. A reaction can occur even the first time contrast is administered.
2. The severity of a reaction is also not dose-related; therefore a test dose is of no value in this type of reactions.
3. The occurrence of a contrast reaction does not necessarily mean that it will occur again (although the risk is greater that it may).
4. Even though the circulating contrast is systemic, the nature of the response is variable. More than one type of reaction may occur simultaneously.

Despite the pathophysiology of anaphylactoid reaction differs from anaphylactic reaction; due to identical clinical pattern, this reaction is treated in the same way as anaphylactic reaction.

On emergency basis, maintenance of airway, breathing and circulation of the patient is the first important step in management. Antihistaminics, bronchodilators, corticosteroids and epinephrine are the mainstay medications useful for management of such acute reaction.

CONCLUSION

Even the first dose can cause anaphylactoid reaction, clinicians have to be most cautious during the administration of iodinated radio contrast media, vancomycin, alteplase, iron dextran, aprotinin, ondansetron etc. They have to remain equipped with ventilator, defibrillator and necessary medications during administration. Thus reporting of such type of adverse drug reaction is very much fruitful for dealing in future with these reactions for wellness of community.

Conflict of interest – Nil

Funding - Nil

REFERENCES

1. Christiansen C. X-ray contrast media: an overview. *Toxicology* 2005; 209(2):185-7.
2. Cochran ST. Anaphylactoid reactions to radiocontrast media. *Curr Allergy Asthma Rep* 2005;5(1):28-31.
3. Morcos SK. Acute serious and fatal reactions to contrast media: our current understanding. *Br J Radiol* 2005; 78(932): 686- 93.
4. Singh J, Daftary A. Iodinated Contrast Media and Their Adverse Reactions. *J. Nucl. Med. Technol.* 2008; 36(2): 69-74.
5. Cochran ST, Bomyea K, Sayre JW. Trends in adverse events after IV administration of contrast media. *AJR.*2001;176(6):1385-88.
6. Almén T. The etiology of contrast medium reactions.. *Invest Radiol.* 1994; 29(suppl 1):S37–S45.
7. Laroche D1, Namour F, Lefrançois C, Aimone-Gastin I, Romano A, Sainte-Laudy J *et al.* Anaphylactoid and anaphylactic reactions to iodinated contrast material. *Allergy* 1999;54(suppl 58):13–16.
8. American College of Radiology. *Manual on Contrast Media*, Version 7. 2010.