

Case Report

## A Case Report on Ceftriaxone Induced Hypersensitivity Reaction

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### ABSTRACT

Ceftriaxone is a third generation antibiotic from family of antibiotic from cephalosporin family of antibiotic having a broad spectrum activity. It is having a good activity against several gram negative organisms and anaerobes. Ceftriaxone used in the treatment of various gram negative infections such as respiratory tract infection, meningitis due to H. influenzae, Neisseria meningitis and S. pneumoniae and to treat gonorrhoea due to Neisseria gonorrhoea. Ceftriaxone therapy produces a potentially unusual life threatening hypersensitivity reactions. Whenever the patient is exposed to ceftriaxone produce IgE antibodies fix to mast cells then again reexposure to same drug antigen antibody reaction occurs on the mast cell surface then release of inflammatory mediators like histamine, 5 Histamine, Prostaglandins, Leukotrienes, Platelet Activating Factor these mediators cause urticaria, bronchospasm, hypotension, angioedema and anaphylactic shock. Management of hypersensitivity reaction includes Inj. Adrenaline 0.3,0.5mlIM, Inj Hydrocortisone-100-200mg IV, Inj Pheniramine 45 mg IV. Here we report 57 year female presented with the hypersensitivity reactions with ceftriaxone therapy.

**Keywords:** Antibiotic, Adverse drug reactions, Ceftriaxone, hypersensitivity reactions.

### INTRODUCTION

Ceftriaxone is a third generation antibiotic from cephalosporin family of antibiotic its half life is 8 hours, <sup>(1)</sup> given once daily for most infections and twice daily for meningitis. Ceftriaxone selectively and irreversibly inhibits bacterial cell wall synthesis by binding to transpeptidases also called transaminases, which are penicillin binding proteins(PBP) that catalyze the cross linking of peptidoglycan polymers forming bacterial cell wall. <sup>(2)</sup> Ceftriaxone exerts in vitro activity against gram positive and gram negative microorganism. IV administration of ceftriaxone is well tolerated and used for treatment of serious bacterial infections. Ceftriaxone having a few adverse drug reactions but

hypersensitivity reaction are most common.

<sup>(3)</sup> The incidence of ceftriaxone induced allergic reactions are still lesser rate 1-0.0001%.

### CASE REPORT

57 year old female patient was diagnosed with bronchial asthma in the year 2016, undergone treatment with Ceftriaxone, Deriphyllin, Ranitidine, Nebuliser Duolin and Syrup Ascoril and she was on medical examination. She is having history of cough with expectoration for 1month sputum white in colour, mucoid in consistency, not fowl smelling. Haematological parameters showed ESR 30mm/hr(0-20mm/hr), MCH 31.9 g/dl( 2-36g/dl), RBC 4.83X10<sup>12</sup>/L (3.5-5.5 X10

12/L) Hgb-12-16 g/dl. In chest X ray increased bronchovascular marking B/L left lung homogenous capacity. We pharm D students by assessing the patient medication chart we suggested that ceftriaxone induced hypersensitivity reaction was noted on second day. And it was taken to the physician desk. After physician consultation the ceftriaxone was stopped on third day and she was given with the alternative of T. Glevo (Levofloxacin-500mg) along with Syrup Ascoril. At the time of discharge complaints of cough with expectoration decreases, breathlessness decreases and her pulse rate was found to be 74/min, BP-120/80mmHg.

## DISCUSSION

Pharmacovigilance is defined as the science and activities involving to the detection, understanding, assessment and prevention of adverse drug reaction or any other drug related problems. Adverse Drug reactions can occur due to the use of multiple or concurrent drugs drug interaction and possible attention etc.,<sup>(4)</sup> Drug explosion are common comprising 10-30% of all reported ADRs.<sup>(5)</sup> Beta lactam antibiotics like cephalosporins, penicillins and sulphonamides develop hypersensitivity reactions more commonly. Ceftriaxone is a third generation cephalosporin antibiotic. It is used commonly in adult patients and children for serious infections. Hypersensitivity reactions due to ceftriaxone therapy are potentially serious.<sup>(6)</sup> Cephalosporin induced hypersensitivity reactions may be immediate or non-immediate. Immediate reactions are IgE mediated reactions lie urticaria, bronchospasm, anaphylaxis and angioedema which typically occurs within a hour of drug experience.<sup>(7)</sup> Non immediate reactions are

maculopapular or morbiliform rashes and delayed appearance of urticaria. Rashes or urticaria was most frequently happening adverse reactions of IV ceftriaxone.<sup>(8)</sup>

## CONCLUSION

Ceftriaxone which is used widely to treat various infections has ability to cause severe allergic reactions. Hence it is must to do skin test prior to administration of ceftriaxone or other beta lactam antibiotics.

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How to cite this article: Anjalimol PT, Mary JP, Achenkunju V et.al. A case report on ceftriaxone induced hypersensitivity reaction. International Journal of Research and Review. 2019; 6(11):533-534.

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