

Ceftriaxone induced maculopapular rash in a four year child

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Abstract

Adverse drug reactions are unwanted or unintended reactions which result from drug use and it is the major cause contributing to high morbidity and mortality. The augmenting incidence of Adverse Drug Reaction (ADR) is mainly due to use of polypharmacy, medication errors, lack of allergy history taking, medication adherence and lack of reporting. Ceftriaxone is a β -lactam, third generation cephalosporin, acts by inhibits the cross-linking of the peptidoglycans (main components of bacterial cell wall) and thus interrupting cell wall formation leading to death of bacterial cell. Here in this case a malnourished female child, who was on the treatment on status epilepticus with fever developed a maculopapular rash all over the body (trunk, face, & hand) which occurred on the 6th day of administration of ceftriaxone injection.

Keywords

antibiotic; adverse drug reaction; ceftriaxone; maculopapular rash

Introduction

The WHO defines an ADR as “a response to a drug which is noxious and unintended and which occurs at doses normally used in man for prophylaxis, diagnosis, or therapy of disease or for the modification of physiologic function”. Cephalosporins are most commonly prescribed antibiotics prescribed in a combination with penicillins due to their ability to kill wide range of microorganisms [1]. Ceftriaxone is a β -lactam, third generation cephalosporin, it acts by interfering with the synthesis of the bacterial cell wall peptidoglycan. It binds to penicillin-binding proteins on bacteria (there may be seven or more types in different organisms), they block the transpeptidase enzyme that crosslinks the peptide chains attached to the backbone of the peptidoglycan. The final bactericidal event is the inactivation of an inhibitor of autolytic enzymes in the cell wall, leading to lysis of the bacterium [2]. Incidence of hypersensitivity reactions with cephalosporins is 1-3%. Most allergic reactions of ceftriaxone include maculopapular rash, urticaria, pruritis, fever, anaphylaxis, serum sickness like reactions. This case reports points out the maculopapular rash developed by ceftriaxone injection 400mg/ IV/BD on a 4yrs old girl.

Case Report

A female patient of 4-yr-old weighing 8kgs was brought to Pediatric ward with the complaints of seizure activity for 15 minutes (2 repetitive episodes). She was diagnosed to have Status Epilepticus with severe acute malnutrition and fever. For management Inj.Ceftriaxone-400mg/IV/BD, Syp.Paracetamol/5ml/QID, inj. Sodium Valproate- 20mg/IV/BD and multivitamins were given. On the fifth dose of Inj.Ceftriaxone she developed maculopapular rashes all over the face, hands, and anal trunk [Figure 1,2,3]. Suspecting drug reaction, patient's mother reported it to the physician. Patient was then referred to dermatology unit and then the antibiotic was immediately stopped and the patient was advised Chlorpheniramine maleate-3ml/BD, liquid paraffin for LA. The rashes healed in 10 days.



Figure 1: rashes on hand



Figure 2: rashes on trunk



Figure 3: rashes on face

Discussion

Hypersensitivity reactions are broadly of two types based on their time interval of the last dose administered. They are:

1. Immediate reactions (<1hr)
2. Non-immediate reactions (>1hr)

These reactions can be (mild, delayed or severe anaphylactic reactions) which are immunoglobulin E (IgE) mediated or cell mediated. Diagnosis can be made by reviewing complete patient's medical history, allergy tests like skin pricking. Laboratory investigations like basophil activation test and lymphocyte activation test are more helpful [3-7]. According to WHO causality assessment [8], this reaction is related to drug use, rashes were seen on face, trunk & hands after the fifth dose of the antibiotic. After stopping the drug the patient resolved the rashes in 10 days. Therefore for better safety, prescribers should be aware of patient's complete drug related allergies, and should be documented to avoid these reactions.

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