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Cefiximeinduced Erythema Multiforme (Case Study)

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KEYWORDS :

INTRODUCTION

Erythema multiforme (EMF) is an acute skinand mucous membranes disease it is characterised by symmetrical distribution of lesions on the skin, primarily on the extremities located, and has tendency of recurrences. Erythema multiforme is liketo be uncommon in childhood, and very less paediatric series fond of EMF[1,2].In EMF, pathologic changes during initial skin lesionsconsists of mononuclear cells at the superficial dermal bloodvessels epidermal damage and keratinocyte necrosis are more characteristic of EMFleading tomultilocular intra-epidermal blisters[3]. Depending on theabsence or presence of mucous membrane erosions, causes may be classified as major EMFor minor EMF[4].In Erythema multiforme, Eosinophilsproduces basic protein, eosinophil cationic protein, neurotoxin derived by eosinophils, and eosinophil peroxidise that could directly exploit involved tissue or augment the inflammatory cascade into the inflammatory loci by initiating other effector lymphocytes[5,6,7].Thus, eosinophil predominantly plays a vital role in drug eruptions pathogenesis. Yawalkar N et al, data indicated that eosinophil counts positivelycorelated likely with poor liver function, extended hospitalization, prolonged corticosteroid use in patients with Erythema multiforme–type drug eruption.

Eosinophilia occurs in 4 stages:

(1)Eosinophilsdifferentiation and proliferation in bone marrow
(2) Rolling, adhesion, and migration
(3)Migration through chemo-attraction and
(4)Activation and consecutive cell death.

During the initial stage of drug eruption, circulating eosinophils initiated to cause cutaneous lesions or consumes in larger numbers than bone marrow,immediate replenishment might contribute to low range of circulating eosinophils[8].Circulating eosinophils of high levels in patients with Erythema multiforme-type drug eruption may be due to IL-5, IL-3, and GM-GSF over production in lesions and peripheral blood during drug eruption[9].Longitudinal analyses signified increased eosinophil counts decreased notably in Erythema multiforme–type drug eruption after corticosteroids drug employment[9]. Cytokines high levels could stimulate differentiation and proliferation of eosinophil in bone marrow and augmenteosinophil employ to peripheral blood and lesions[10,11].

Cefixime is an antibiotic belongs to third generation cephalosporin's, they exert effect by adhering to penicillin-binding proteins (PBP) and by inhibiting peptidoglycan synthesis, thus making damage to cell wall of bacteria.Cefixime attains serum peak levels approximately 4 hours by oral dosing and half-life is of 3 to 4 hours and not dose dependent. It is excreted by renal mechanism and also biliary mechanism. About 50% of absorbed dose excreted unchanged in urine within 24 hours. There is no evidence for Cefixime metabolism in *vivo*[12,13]. Even though dermatological reactions due to the Cefixime are rare, there are reports for pruritus, rashes, urticaria, and drug fever as hypersensitivity reactions. In fewer patientssevere reactions are Stevens - Johnson syndrome, Erythema multiforme, and toxic epidermal necrolysis have also been reported[14].

CASE REPORT

A twenty five old female patient visited to our dermatology department with the complaints of on and off fever, gangrene on the right foot, swelling of feet and hands with pain in joints. A diagnosis of foot ulcer had been made in government hospital and prescribed with tablet Cefixime (oral 200mg BID). After taking Cefixime 200mg orally, the very next day erythematous rashes were seen on hands and legs. The rashes were progressive day by day. After 15 days the patient got admitted to dermatology ward presenting Erythema multiforme lesions with palpable purpura along with feet and hand swelling. Based on the history and physical examination findings, a diagnosis of Cefixime induced EMF was made in our hospital & Treated with Dexamethasone 2cc IV OD was given along with tablet ascorbic acid, topical local application of liquid paraffin is advised. Patient recovered after 5 with progressive response to the treatment.

DISCUSSION&CONCLUSION

EMF is an acute mucocutaneous, which is an inflammatory and hypersensitivity reaction characterized by symmetrical distribution of lesions as skin eruption, erythematous oedematousbullous lesions on skin or mucous membranes[12].EMF major is likely severe, typically involving 2 or more mucous membranes with more variable skin involvement. This feature is used to distinguish it from Stevens–Johnson syndrome, where there is extensive skin involvement, significant morbidity, and a mortality rate of 5% to 15%.

J Yang et al, in a study did horizontal comparison with 3 groups has ratified that eosinophilscount significantly are higher in Erythema multiforme–type eruption patients. Yawalkar N et al., study data indicated the eosinophil counts positively and likely correlated with poor liver function, extended hospitalization, prolonged corticosteroid use in patients with Erythema multiforme–type drug eruption[9].Farthing P et al, observed EM more in males, similar incidenceof drug-related EMFis found in both males and females[13].Cefixime is a third-generation oral cephalosporin which is commonly utilized in the recent world for bacterial infections. It is an antibiotic that exert effect by adhering to penicillin-binding proteins (PBP) and by inhibiting peptidoglycan synthesis, thus making damage to cell wall of bacteria.Gupta's

et al also reported dermatological fixed drug eruptions in an outpatient due to the use of Cefixime.Even though reactions by Cefixime are not likely, there are findings of pruritus, rash, urticaria, and drug sensitive fever as hypersensitivity reactions in not more but less than 2% of patients. Severe reactions such as erythematic multiforme,Stevens - Johnson syndrome, and toxic epidermal necrolysis have been also reported by cefixime.

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