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A Case of disappearing toxic epidermal necrolysis after cessation of cefepime

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Abstract

Stevens Johnson Syndrome and Toxic Epidermal Necrolysis are severe mucocutaneous reactions, most often secondary to medication administration, characterized by extensive epidermal necrosis and desquamation accompanied by fever. We present a rare case of cefepime induced SJS and discuss the clinical approach.

Keywords

drug interaction; steven johnson syndrome; toxic epidermal necrolysis; cefepime

Background

Stevens Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) are part of a spectrum differentiated by the extent of epidermal involvement as a factor of the percentage of body surface [1].SJS is defined by the involvement of less than 10% of the body surface. TEN involves greater than 30% of the body surface [1]. TEN is a rare diagnosis with an estimated incidence of 1-2 cases per million people per year and a mortality rate of 30% [2]. It is most commonly drug induced with other etiologies including malignancy and infections. While several antibiotics, particularly sulfonamides and penicillin containing compounds are recognized causes of TEN, cephalosporin induced TEN is rare with most cases attributed to first, second and third generation cephalosporin use. The first case of cefepime, a fourth-generation cephalosporin, inducing TEN was reported in 2015 [3].

Case Report

A 37 y/o Hispanic man brought from nursing home with a past medical history of hypertension, seizure disorder and traumatic brain injury following a gunshot wound, status post tracheostomy and chronic ventilator dependence, presented to the Emergency department with hypotension and altered mental status. The patient had recently been diagnosed with ventilator-associated pneumonia five days prior to admission, with a tracheal aspirate culture positive for Pseudomonas aeruginosa, which was treated with amikacin, vancomycin and cefepime. On the morning prior to admission, the patient was febrile, diaphoretic and lethargic. The patient met 3 of 4 criteria for Systemic Inflammatory Response Syndrome (SIRS), with temperature 38·3°C, HR >100, and RR > 30. Visual examination of the patient's

particularly the bridge of the nose, back and upper and lower extremities, revealed areas of erythema, blistering and skin desquamation. No mucosal lesions were noted. Allergy and Immunology Department was consulted and a skin biopsy performed which reveal that the skin lesions were consistent with Toxic Epidermal Necrolysis. The initial dose of cefepime was 2 grams every 8 hours. Cefepime was stopped and patient was given a two-day course of methylprednisolone, 125mg every 8 hours which resulted in the resolution of the rash on the face, back and extremities.

Discussion

SJS/TEN has been linked to the use of a plethora of medications with significant contributory effects reported from the use of polypharmacy and the concurrent presence of comorbidities [4]. Few cases have been reported to date outlining cephalosporins as causative agents. Severe cutaneous adverse reactions precipitating from the administration of cephalosporins are rare but have been noted to happen in the framework of co-administration with other antibiotic agents [5]. In most cases, these adverse reactions were caused by first to third generation cephalosporins [5].

There have only been three published reports of cefepime, a fourth-generation cephalosporin, inducing TEN, thus highlighting its rarity [6,7]. We believe that our patient outlines a rare fourth instance of TEN secondary to the administration of cefepime. The medication was initiated four days prior to admission and notably, the patient had never been exposed to it previously. The prompt resolution of symptoms following the discontinuation of the medication also enforces the proposed etiology. The patient was also co-administered amikacin and vancomycin, further supporting the etiological assertion regarding concurrent administration of multiple antibiotics.

Several studies have outlined racial disparities in the patterns of incidence seen with SJS/TEN. The results of these studies communicate the highest incidence of SJS/TEN in Asian and Black populations [8]. Our case highlights the first reported instance of TEN precipitated by cefepime in a Hispanic individual. In addition, the reaction is more commonly seen in females with a ratio of 5:3 [8]. This further underscores the rarity of our case with the patient being a Hispanic male. Our case is also unique in its treatment modality. The previously reported cases of cefepime induced TEN employed IVIG therapy or extended steroid tapers to manage the patients' condition [6,7]. We utilized a two-day course of methylprednisolone 125mg every 8 hours with a hard stop, following the cessation of the offending agent, which resulted in the prompt resolution of the rash on the face, back and extremities.

Our case emphasizes the need to recognize TEN in patients with active skin desquamation and blisters being treated on cefepime to ensure prompt discontinuation of the antibiotic as well as highlighting a two-day course of methylprednisolone with a hard stop as an effective therapeutic alternative.

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