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Dapsone Induced "DRESS" Without Eosinophilia

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Abstract: Drug reaction with eosinophilia and systemic symptoms (DRESS) is a unique entity precipitated by a variety of drugs and often presents with variable clinical manifestations. It is also known as drug-induced hypersensitivity (DIHS) reactions, which leads to life-threatening anaphylaxis and rare cutaneous reactions. Most of the literature mentioned that presence of eosinophilia is the hallmark of the DRESS. The cutaneous manifestations of DRESS are erythema multiforme, exfoliative dermatitis, maculopapular rash, and erythroderma. However, we herein report a case of a patient who presented with fever, morbilliform rash and liver derangement along with the absence of eosinophilia induced by Dapsone therapy.
Key words: Eosinophilia, systemic symptoms, and drug reaction and DRESS.

INTRODUCTION

Drug hypersensitivity may manifest ranging from milder skin reactions (e.g., maculopapular exanthema and urticaria) to severe systemic reactions, such as anaphylaxis, drug reactions with eosinophilia and systemic symptoms (DRESS)/drug-induced hypersensitivity syndrome (DIHS), or Stevens–Johnson syndrome (SJS)/toxic epidermal necrolysis (TEN).

Although the exact mechanism of DRESS is still unclear, it mostly favors being an antiviral T cell-mediated delayed-type reactions consist primarily of type IV reactions, which are T cell-mediated delayed-type drug hypersensitivity reactions.

DRESS usually develops comparatively 2 to 8 weeks after initiation of offending drugs. DRESS is considered to be a form of drug hypersensitivity reaction with a 10% of case fatality rate. DRESS syndrome, in the meantime, is characterized by cutaneous involvement with typical skin eruptions (e.g., exfoliative dermatitis and generalized maculopapular exanthema), fever, atypical lymphocytosis, eosinophilia lymphadenopathy, and systemic involvement (e.g., liver involvement and kidney involvement). As the terminology is suggestive, "Eosinophilia" is a prime component of DRESS. However, we herein report a case of a patient who presented with fever, morbilliform rash and liver derangement along with the absence of eosinophilia induced by Dapsone therapy. This is one the rare presentations of dapsone therapy.

CASE HISTORY

A17- old- female presented with high grade fever, non-itchy, non-blanching morbilliform rash on the inner aspects of bilateral thighs for 3 days. She was on dapsone 100 mg/day for last one-month period for leprosy, which was confirmed by skin biopsy. On clinical examination the patient was febrile to touch with a temperature of 104º F. conjunctival pallor, not icteric, no enlarged lymph nodes or organomegaly. Her complete blood count revealed lymphocytic leukocytosis, her white blood count (WBC) 25 x 10^3, lymphocytes 45%, eosinophils 2.2%, and neutrophils-45.2%. Haemoglobin 7.2 g/dl, depicting a microcytic hypochromic anemia (MCV- 56.2, MCH- 18.3, MCHC-27.0). A peripheral blood smear revealed atypical lymphocytes comprising of 13% of total lymphocytes. Liver functions were deranged with a 5-fold increase of aspartate transaminase (AST) 280iu and alanine transaminase (AST) 281iu.alkaline phosphatase 325U/L, gamma GT 170.Renal functions, serum electrolytes, *erythrocyte sedimentation rate* and *C-reactive protein* were all within normal limits. Cultures of both blood and urine were sterile. An ultra sound scan of the abdomen performed was normal. We made the diagnosis of DRESS induced by dapsone was made as per the registry of severe cutaneous adverse reaction (RegiSCAR) validation score. The offending drug,

Dapsone in this case was withheld. A course of Prednisolone 12.5 mg BD (0.5 mg/kg) was commenced. Fever subsided within 24 hours. one pint of cross matched blood was transfused. The deranged liver functions steadily declined and normalized within 3 days. There was also a gradual disappearance of the morbilliform rash in approximately 4 days. A gradual tapering of Prednisolone was planned over a period of 4 weeks to avoid flare-ups.

DISCUSSION

The name of DRESS/DIHS, was first described in 1996 by Bocquet et al, he found that group of symptoms and signs with cutaneous eruption occurred after exposure to the certain drugs[1]. It usually associated with number of drugs such as allopurinol, minocycline, dapsone, mexiletine, phenytoin, phenobarbital, lamotrigine, and carbamazepine[2-4].The most common features of DRESS are lymphadenopathy, eosinophilia, atypical lymphocytosis, and elevated liver enzymes[5].Most of the literature mentioned that presence of eosinophilia is the hallmark of the DRESS[6]. The cutaneous manifestations of DRESS are erythema multiforme, exfoliative dermatitis, maculopapular rash, and erythroderma[2].Typical haematological abnormalities include, leukocytosis with atypical lymphocytosis and eosinophilia. However atypical lymphocytosis with the absence of eosinophilia was a unique feature in our case. The presence of eosinophilia is characteristic features of DRESS, however a study conducted in Thailand, where eosinophilia has been observed only 70.4% of DRESS patients[7].

DRESS is considered to be a form of drug hypersensitivity reaction with a 10% of case fatality rate. Elevated liver enzyme one of the poor prognostic factors, in this patient's transaminase level raised by 5-fold which indicates that she had severe DRESS. In addition to that number of other poor prognostic factors are include pancytopenia, chronic renal insufficiency, coagulopathy, and gastrointestinal bleeding[8]. Furthermore, DRESS should be considered in the list of differential diagnosis when a patient presents with a combination of Pyrexia of unknown origin and systemic symptoms. Interestingly, it has been observed that production of autoantibody and autoimmune disease such as thyroiditis, type 1 Diabetes, and connective tissue disease such as systemic lupus erythematosus can occur as a late presentation of the DRESS[8, 9]. Finally, it is essential to commence steroid therapy parallel to terminating the culprit drug which in our case completely reversed the condition. The management point of view, prednisone, 0.5-1mg/kg/day, or an equivalent is recommended[10]. However, in those with life-threatening condition such as bone marrow failure or fulminant hepatitis need immunoglobulin at 2g/kg over 5 days should be given.

Contribution

All three authors are contributed equally

Consent to participate

Consent was taken from the patient

Consent for publication

Written informed consent was obtained from the patients for publication of this case report

Availability of data and material

All data gathered during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

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