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EC PULMONOLOGY AND RESPIRATORY MEDICINE

Case Report

A Case Report on Dapsone Syndrome in Leprosy Patient

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Received: May 10, 2018; **Published:** June 28, 2018

Abstract

Dapsone is a sulfone group of drug with anti-inflammatory and antibiotic properties. It is the cheapest, oldest and most active drug in sulfone family used in treatment of leprosy and skin blistering diseases. Dapsone causes several adverse reactions among which some are fatal with multiorgan involvement such as dapsone hypersensitivity syndrome or dapsone syndrome. Prompt diagnosis, drug discontinuation and early treatment is essential to prevent its fatal effects and associated mortality. We report a case of 35 year old male with complaints of fever, tightness and scaling all over the body after dapsone administration. Patient was improved and discharged on treating with corticosteroids, antihistamines, antibiotics, emollients and vitamin supplements.

Keywords: *Dapsone Syndrome; Hypersensitivity; Corticosteroids; Leprosy*

Introduction

Dapsone is a sulfone group of drug with anti-inflammatory and antibiotic activities [1]. It is widely used in the treatment of leprosy and skin blistering diseases [2] such as dermatitis herpetiformis, bullous dermatosis, and bullous eruption of SLE [3] etc. Dapsone is a structural analogue of PABA thereby it inhibits DNA synthesis. It exhibits anti-inflammatory properties by inhibiting integrin-mediated adherence and chemotaxis of neutrophils [4]. Common adverse effects of dapsone include hemolytic anemia, skin hypersensitivity reactions, methemoglobinemia [5] and it can also cause a distinct hypersensitivity reaction called "dapsone syndrome" (DDS). DDS is also known as "five week dermatitis" or "sulfone syndrome" [1]. The present case report emphasizes the DDS in 35 years male who was on adult Multibacillary leprosy multidrug treatment (MB-MDT) regimen.

Case Report

A 35 year old male who was on adult MB-MDT regimen for 7 weeks has started developing scaling over LL initially since 2 weeks which later progressed to involve entire body. He was taken to local doctor where T. hansepran, T. dapsone, T. betnesol and I. hydrocortisone were prescribed after which lesions subsided. Patient started experiencing scaling after 10 days again along with other manifestations such as fever chills, rigors and tightness of skin all over body. He was referred here for further management. On examination, diffuse scaling was present all over the body including palms and soles in erythematous background. Tightness of skin was found over face, hands and legs. Congestion and yellowish discoloration of eyes were observed. Bilateral ulnar, radial cutaneous was thickened and tender. On the day of admission antibiotic, antihistamine, topical emollient and vitamin supplements were given. On day-2 patient was suspected to have dapsone syndrome and stopped dapsone therapy. Intravenous dexamethasone 4mg was initiated from day -3 by continuing rest of the therapy. Blood samples were collected for hemogram, electrolytes, renal and hepatic profiles on day-3. Reports revealed that patient had microcytic hypochromic anemia with Hb-8.6 g/dl and leukocytosis (WBC- 12,700 cells/cu.mm). His hepatic profile (SGOT- 31 U/L, SGPT- 48 U/L, total bilirubin-1 mg/dl, direct bilirubin- 0.2 mg/dl and indirect bilirubin-0.8 mg/dl), renal profile (Serum creatinine- 1 mg/

dl) and electrolyte levels were found to be normal. Patient was found to be responsive to the intravenous dexamethasone and on day-20 it was discontinued by initiating oral prednisolone 20 mg. patient was referred to orthopedics for his joint pains and was treated with T. diclofenac. From day-32 patient started receiving MB-MDT without dapsone by continuing oral steroid therapy. Patient was improved and scaling was subsided. On day-38 day patient was discharged with tapering dose of steroid and MB-MDT without dapsone as discharge summary.

Discussion

Dapsone was introduced for treating leprosy in 1947. Since then it has been used effectively in various anti-leprosy regimens and other dermatological disorders. The first report of hypersensitivity to dapsone was published in 1949 [1]. Dapsone has oral bioavailability of greater than 86% [6]. Dapsone is metabolized in two pathways, N-acetylation and N-hydroxylation. The formation of toxic intermediate metabolites through N-hydroxylation pathway is thought to be responsible for dapsone syndrome, methemoglobinemia and anemia [7]. Dapsone syndrome may be associated with DRESS syndrome where fever, malaise, eosinophilia, lymphocytosis and single or multiple organ involvement can be seen [2,8]. In the present case, the patient presented with scaling of lower limb which was thought to be due to rifampicin hypersensitivity by the local physician. Later the therapy was continued without rifampicin and by giving intravenous hydrocortisone after which lesions subsided. But the patient had similar complaints after 10 days and referred to here. Necessary investigations to differentiate dapsone syndrome from infectious mononucleosis and viral hepatitis were done here. Later corticosteroid therapy was continued by discontinuing dapsone. As a result patient response was good. Antibiotics were changed periodically. Iron folic acid supplementation was provided to the patient due to his anemic status. Intravenous medications were converted to oral medications. Patient was discharged with oral corticosteroid, vitamin supplements and MB-MDT without dapsone. Corticosteroids should be tapered because dapsone persists in the body for upto 35 days due to its strong protein binding capacity and enterohepatic circulation [8].

Conclusion

Dapsone syndrome is not a rare reaction and can be fatal if not taken care early. It is usually self-limiting by discontinuing dapsone and initiating corticosteroid therapy at early stages. Hence, physicians especially in areas with high prevalence rates of leprosy should be aware of this reaction so that early recognition and treatment is possible.

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Volume 7 Issue 7 July 2018