

Isoniazid - induced lichenoid drug eruption presenting as exfoliative dermatitis in a South Asian woman- A case report

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Abstract

According to WHO, tuberculosis is a worldwide pandemic caused mainly by *Mycobacterium tuberculosis* in humans. Isoniazid is one of the first line drugs given in the treatment of tuberculosis.

Lichenoid drug eruptions presenting as exfoliative dermatitis and toxic epidermal necrolysis are uncommon but serious cutaneous adverse drug reactions (CADR) of isoniazid. Here we report a case of a 55-year-old female patient who presented with multiple violaceous macules and plaques over photoexposed areas of the skin associated with itching after 10 weeks of anti-tubercular treatment (ATT) which resembled lichen planus. For the tubercular treatment, she was given 4-FDC (fixed dose drug combination) which includes rifampicin, isoniazid, pyrazinamide, ethambutol hydrochloride. Rechallenge of ATT was done and she was found to be reactive to isoniazid and hence it was stopped immediately. Antihistamines and steroids were given and the patient was resolving her symptoms.

Keywords

Cutaneous adverse drug reaction; tuberculosis; isoniazid; lichenoid drug eruption; exfoliative dermatitis.

Abbreviations

TB: Tuberculosis; CADR: Cutaneous adverse drug reactions; DC: Fixed dose drug combination; ATT: Anti-tubercular treatment.

Introduction

TB is one of the most common air-borne infectious diseases affecting 1-3% of the world's population [1]. On October 2019, WHO published global TB report which estimates around 10 million (range 9.0-11.1 million) people were affected with TB in 2018 [2]. With proper diagnosis and treatment with first-line agents (Isoniazid, rifampicin, ethambutol and pyrazinamide) for 6 months, TB can be cured. Isoniazid is a

first-line drug in TB which acts by inhibiting bacterial cell wall synthesis. The most common adverse effects of isoniazid are gastrointestinal and hepatotoxic effects [3]. Cutaneous Adverse Drug Reactions (CADR) of isoniazid like maculopapular rashes, purpuric skin eruptions, exfoliative dermatitis, toxic epidermal necrolysis and lichenoid drug eruptions are very uncommon. The most common symptoms of Lichen Planus include violaceous, symmetric erythematous, flat, polygonal papules on the trunk and extremities [4]. We hereby report a case on isoniazid-induced Lichenoid drug eruption presenting as exfoliative dermatitis in a 55-year-old female patient who developed symmetric erythematous violaceous papules on both hands.

Case Presentation

A 55-year-old woman presented to dermatology unit with a chief complaint of multiple violaceous macules, plaque eruptions over the photoexposed areas of the body associated with itching. These skin changes were noted approximately 2 months after starting 4-FDC (Fixed drug dosage combination) for the treatment of pulmonary tuberculosis. Patient's past medical history was significant to pulmonary tuberculosis diagnosed by Cartridge Based Nucleic Acid Amplification Test (CBNAAT), Mycobacterium Tuberculosis (MTB) detective taking Anti Tubercular Treatment (ATT), 4FDC (fixed dose drug combination) which includes rifampicin, isoniazid, pyrazinamide, ethambutol hydrochloride – 3 pills daily. She developed pruritus on the 4th week which evolved to symmetric erythematous papules on the body (Figures 1 & 2) by the 10th week. She was rechallenged with the drug and was found to be sensitive to isoniazid. Isoniazid was stopped immediately as she could not tolerate it and rifampicin and other drugs were continued for 6 months. For the management of the lichenoid drug eruption she was given antihistamines, topical corticosteroids, liquid paraffin and multivitamins. Laboratory studies included a complete blood count (CBC), Erythrocyte Sedimentation Rate (ESR), Liver Function Tests (LFT) and skin biopsy.

In CBP, the readings were RBC- 4million/mm³(4.5 million/mm³), Hemoglobin-12.0g/dL(13.0-17.0g/dL), WBC-11,000 cells/mm³(4000-10000 cells/mm³), Neutrophils-69%(40-80%), lymphocytes-26%(20-40%), eosinophils-03%(1-6%), basophils-00%(0-2%), monocytes-02% (2-10%)and ESR- 40mm/hr(<30mm/hr). Liver functions tests were found to be normal. Skin biopsy was suggestive of lichenoid infiltrate of lymphocytes and therefore confirming the condition.



Figure 1: Extensor surface of left arm demonstrating confluent violaceous lichenoid drug eruption and residual hyperpigmentation.



Figure 2: Extensor surface of right arm demonstrating confluent violaceous lichenoid drug eruption and residual hyperpigmentation.

Discussion

Here we present a case on Lichenoid drug eruption presenting as exfoliative dermatitis caused by isoniazid. It was confirmed based on physical findings and a biopsy examination. The correlation of Lichenoid drug eruptions and UV radiation have been previously noted [5]. To our knowledge, four case reports of isoniazid-induced exfoliative dermatitis have been reported [6-9]. Several other drugs are known to cause these type of reactions like anti-hypertensive drugs, anti-malarials, non-steroidal anti-inflammatory drugs, hepatitis-B vaccines, gold salts [10,13], and lipid-lowering drugs [11]. Contactants like mercury, gold, copper, color photography developing fluids also cause these type of reactions [12]. The exact mechanism how a drug causes lichenoid eruptions has not been fully understood but it is thought to be related to secondary reaction due to drug and immune system interactions and can be treated with corticosteroids, calcineurin inhibitors, sunscreens [13,14]. Our patient was treated with corticosteroids, anti-histamines and multivitamins and is resolving from her symptoms.

Conclusion

Isoniazid-induced lichenoid drug eruptions with exfoliative dermatitis is an uncommon but serious cutaneous adverse drug reaction. Therefore, isoniazid must be cautiously prescribed to patients after collecting all the previous medication and drug allergy history. Early diagnosis and proper management will cure the condition effectively.

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