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Pyrazinamide induced photodermatitis: a case report

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ABSTRACT

Photosensitivity reactions due to pyrazinamide are rare. In this report, a case of pyrazinamide induced photodermatitis has been reported in a patient who is one anti-tuberculosis treatment. The patient developed rashes with burning sensation which are worsened on exposure to sun. These rashes had developed since 5 days following 15 days of start of anti-tubercular drugs. Thus these kinds of adverse reactions can be prevented on early detection and reporting these can help in decrease the morbidity rate of tuberculosis with use of pyrazinamide in the treatment regimens.

Keywords: Anti-tubercular drugs; Pyrazinamide; Photodermatitis.

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Case Report

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INTRODUCTION

Tuberculosis (TB) is a communicable disease caused by bacteria (Mycobacterium tuberculum) that most often affect lungs. TB still remains a worldwide public health problem in every part of the world. According to WHO, the largest number of new cases occurred in the South-East and western Pacific regions in 2017, was 62% of new cases, followed by the African region, with 25% of new cases and 87% of new TB cases occurred in the 30 high TB burden countries. Eight countries accounted for two thirds of the new TB cases: India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa [1].

Pyrazinamide (PZA) forms an integral part of most of the short course regimens, included in all the three categories of DOTS [2]. It is usually bacteriostatic, but can be bactericidal on actively replicating tuberculosis bacteria. The toxic effects of PZA are hepatitis, arthralgia, and very rarely hypersensitivity reactions. With the increasing use of the anti-tuberculosis treatment (ATT), one is likely to encounter hypersensitivity reactions with this drug [3]. Here, in this case report we report a case of pyrazinamide induced hypersensitivity.

CASE REPORT

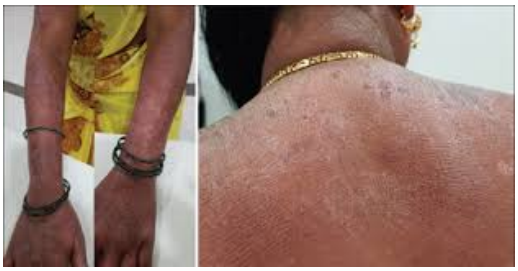

Figure 1: Pyrazinamide induced Photodermatitis

A 38 years old woman who was diagnosed as a fresh case of pulmonary tuberculosis and she was on anti-tuberculosis treatment (ATT) with rifampicin (RIF), isoniazid (INH), ethambutol (E) and pyrazinamide (PZA) in appropriate doses. However after 15 days of the treatment, she developed mild rashes on face, arms on exposure to sun (Figure 1). Later these rashes became more intense and severe that patient rushes to the hospital, there the patient was suspected to drug induced hypersensitivity reaction and suggested to stop all the ATT drugs and started on antibiotics, steroids, hydration and avoidance of sunlight. After eight days, the rashes subsided and ATT drugs were re-introduced one by other and steroids were tapered.

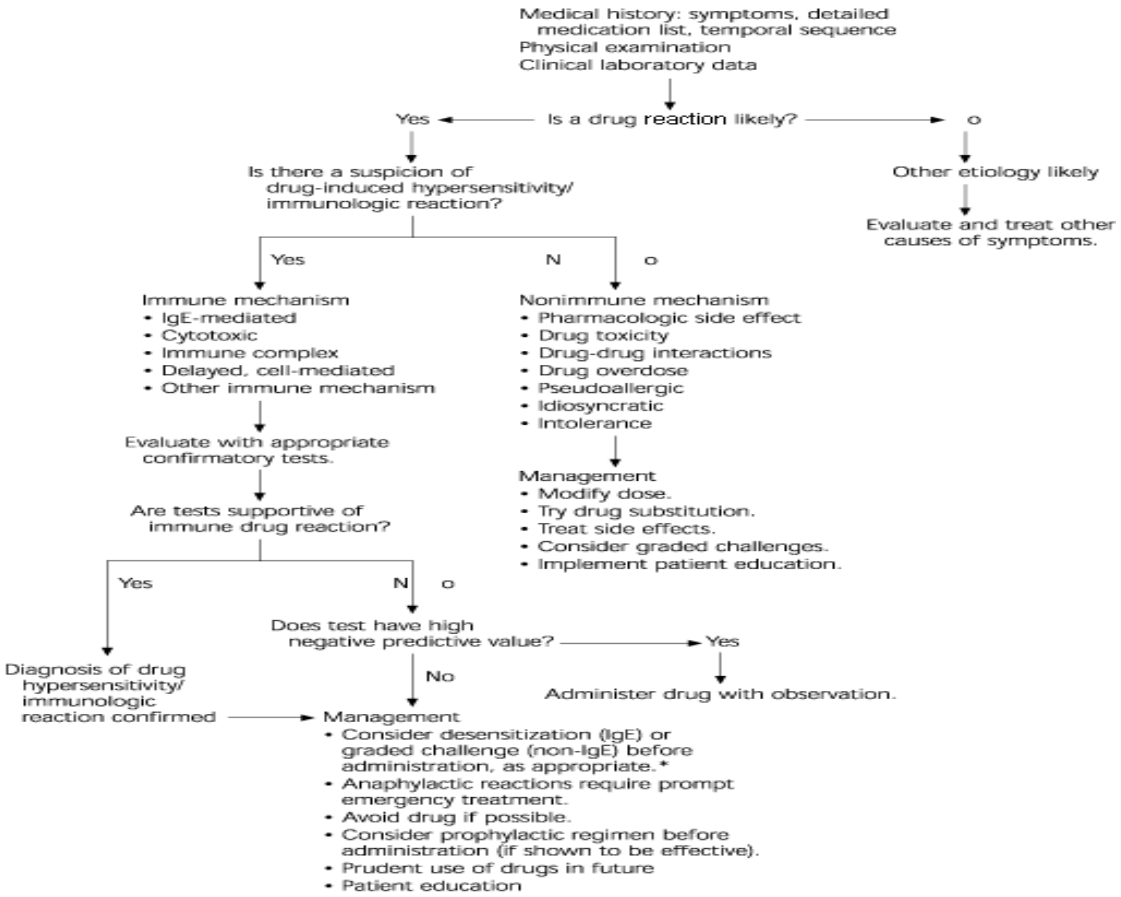

Figure 2: Algorithm for the evaluation and management of drug reaction

Thus on observation the patient was diagnosed as PZA induced photodermatitis and PZA was discontinued and the patient was advised to avoid sunlight wearing mask and gloves to protect face and hands from sunlight and use sun block creams. After 3 months the patient recovered.

DISCUSSION

Photodermatitis is the abnormal chemically induced reaction of the skin which develops itchy rashes on exposed skin to sunlight [5]. Symptoms usually appears on the sun exposed areas of the body such as back of hands, front of arms, lower areas of legs and face [6]. A diagnosis of drug hypersensitivity depends on identifying symptoms and physical findings that are compatible with an immune drug reaction (Figure 2) [10].

There are very few reports showing PZA induced rashes in literature [4-6]. Allergic skin reactions to PZA are usually mild and liable to occur in approximately 3% of cases [7]. Most allergic reactions occur within the first four weeks of therapy and mainly present with a fever and/or skin rash. With PZA, It is estimated that 1 in 100 persons show some signs of photosensitivity. Photosensitivity reaction is caused by an interaction between light rays and a photosensitizing agent (chromophore) which is activated after absorbing the light ray and it is more common on the skin due to natural exposure to the sun rays [8].

INH is the most potent ATD and RIF has a better sterilizing action than PZA. E prevents development of drug resistance, a property also shared by bactericidal drug. PZA is a very limited agent in terms of its *in vitro* activity, but by virtue of its sterilizing action on dormant bacilli which are responsible for relapse, it facilitates reduction in duration of treatment from 9 to 6 months. Hence good cure rates are possible with regimens without PZA, provided a minimum of nine months of treatment is ensured to prevent relapses [9].

CONCLUSION

This case emphasizes the occurrence of photodermatitis consequently upon PZA use, an adverse reaction that has been described with the usage of ATT drugs. Taking this case into consideration, the frequency of occurring this adverse event on PZA use in the antituberculosis treatment and reporting it to the pharmacovigilance (PV), provides a good sign for developing spontaneous reporting system of rare cases in PV centers to improve patient safety.

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