



## Case Report on Isoniazid Induced Lupus Erythematosus: An Autoimmune Phenomenon

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### ABSTRACT

Drug-Induced Lupus is an autoimmune disorder (DIL) sharing similarity with Systemic Lupus Erythematosus (SLE) which is characterized by the production of autoantibodies. DIL is a little different phenomenon where a drug exposure leads to the development of SLE and the symptoms are usually resolved with the discontinuation of the offending agent. A Tuberculosis Patient was consulted the physician with chief complaints of fever and skin rash associated with erythema since 4 days. He is on Anti TB medication therapy (RIPES) since 6 months. After the detailed investigations, it is found that antinuclear antibodies were elevated and seemed to be Lupus. Isoniazid was suspected as a culprit drug in this case with supporting references. De-challenging of Isoniazid improves the patient health and resolved from the symptoms of SLE.



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and procainamide have the highest incidence followed by the TNF alpha, interferon alpha, Isoniazid, phenytoin and sulphonamides [4]. DIL represents 6 to 12% of all lupus cases and more common in elderly population. However, Tuberculosis represents still a national wide public health problem in India. Among the Anti-tubercular drugs, Isoniazid is one of the most frequently used drugs with effective therapeutic results. Isoniazid has been reported as related mainly to drug-induced Lupus Erythematosus. In our present case, Lupus Erythematosus is occurred after the usage of Isoniazid for 6 months.

### INTRODUCTION

DIL is an autoimmune disorder that is developed in a genetically susceptible individual due to drug exposure which is characterized by the production of autoantibodies directed against nuclear and cytoplasmic antigens and it is environmentally triggered. The symptoms are usually resolved with the identification and discontinuation of the offending drug. Probably more than 100 drugs have been identified as the cause of DIL [1, 2]. Of them, some drugs have an evidence of causing DIL by implicating the Case reports and reported drug events. Clinical and Immunological features vary with the exposure of drug in different multiple organs [3]. Hydralazine

### Case Report

A 40 - year old male patient has consulted the physician with the complaints of mild fever and skin rash associated with erythema on the both hands. On past medical history, patient had Tuberculosis and he is on medication with anti-TB medication therapy (RIPES: Rifampicin, Isoniazid, Pyrazinamide, Ethambutol, Streptomycin with their respective weight band i.e., dose) since 6months. Physician advised to investigate Haemoglobin, Total WBC, RBC count, ESR, C-reactive Protein, ANA (antinuclear antibody) Profile report. The laboratory investigations report with reference values are as tabulated in Table 1. After the detailed investigations, ANA

**Table 1: Laboratory investigations report with reference values**

Report	Results	Reference
Hemoglobin	100gm/dl	12-16 gm/dl
Total WBC	3000/ml	4500-1100/ml
RBC Count	3.8 million/ml	4.2-5.7 million/ml
C-reactive protein	Positive	Negative
ANA profile report	Positive	Negative
ESR	46 mm/hr	0-20 mm/hr

report is positive with elevated antibodies due to the offending drug Isoniazid and diagnosed as "Isoniazid induced Lupus Erythematosus". It is diagnosed in earlier stage, so no worries about that. Physician recommends to withdrawal of Isoniazid from his medication and added multivitamin capsules. He asked to review after 7 days and noted he is completely resolved from the symptoms without any additional treatment.

## DISCUSSION

Anti-tuberculosis drugs such as Isoniazid and Rifampicin are most widely used drugs in anti-TB medication therapy regimens. They are effective treatment. However, drug related complications occur frequently. In SLE, the patient's own tissues are attacked by producing autoantibodies by the immune system [5]. The Pathophysiology of DIL is unclear and different mechanisms are responsible for the Induction of autoimmunity by the offending drug. The risk factors of DIL are mainly genetic such as: HLA-DR4, HLA-DR0301 & Complement C4 null allele. The disruption of immune regulation that leads to SLE is associated with an inhibitory reaction of Isoniazid with Complement C4 [6]. To differentiate between DILE and SLE, the findings are less common and the DILE features are listed as:

1. Frequency: Most frequent.
2. Antinuclear antibodies: Positive in most cases.
3. Antihistone antibodies: Positive in 75% cases.
4. Cutaneous lesions: Purpura, Vasculitis, Nodosum, Raynaud's syndrome, Erythema, Photosensitivity, Malar rash. A literature review supports that Isoniazid was the culprit drug in the present case [7, 8]. The treatment was based on the severity along with the discontinuation of culprit drug.

## CONCLUSION

Isoniazid can induce lupus with unclear particular mechanism. However, it is important to get an elaborate drug history because the diagnosis may not be

straight forward. Therefore, care must be taken and observed frequently for any drug related reaction or allergies after the drug administration.

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## Conflict of interest

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