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A Case Report -INH Induced Erythroderma in A Patient with Tubercular Lymphadenitis

Dr.Bharathi Uppu [1], Dr.Ashalatha Muppur [2], Dr.Vasundara Devi B [3]
[1.] *Assistant Professor, Dept of Pharmacology, S.V. Medical college, NTRUHS, India.*
[2.] *Assistant Professor, Dept of Pharmacology, S.V. Medical college, NTRUHS, India.*
[3.] *Professor and Head of the department of Pharmacology, S.V. Medical college, NTRUHS, India.*

Abstract: *Isoniazid also known as isonicotinylhydrazine(or INH) is the first line medication in the prevention and treatment of tuberculosis. It is an essential component of all antitubercular drugs.The other first line oral anti tubercular drugs are Rifampicin, Pyrazinamide and Ethambutol. TB is a chronic granulomatous disease which is a major health problem in India. Here we report a case a erythroderma secondary to INH. According to RNTCP this patient was given Pyrazinamide 750mg 2 tablets, Etambutol 600 mg 2 tablets, Isoniazid 300mg 2 tablets, Rifampicin 450mg 1 capsule .After 10 days of starting the treatment the patient developed Generalised exfoliative dermatitis and was diagnosed as erythroderma.The patient was admitted and ATT(anti tubercular treatment) was stopped. She was given IV fluids and IV steroids .After 2 weeks the patient recovered. Finally the patient was prescribed R,Z,E,Lfx (Rifampicin,Pyrazinamide,Ethambutol,Levofloxacin) respectively.*
Keywords: *INH ,erythroderma, antitubercular therapy ,tubercular lymphadenitis, Rifampicin.*

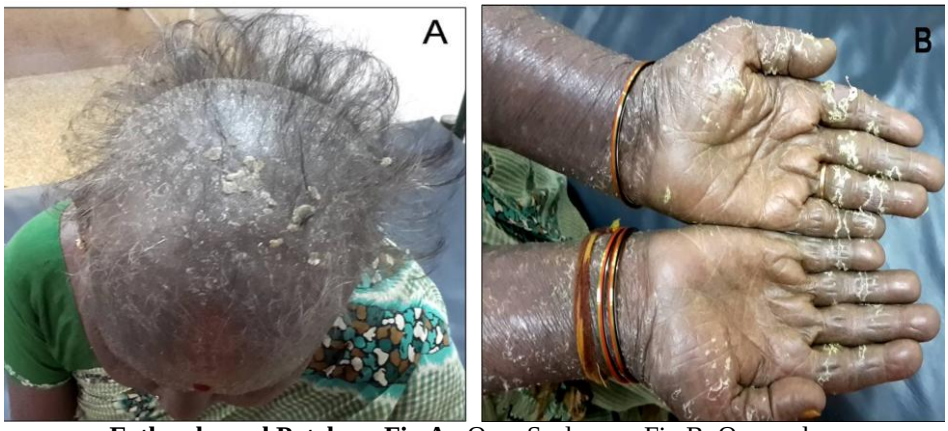
I. Introduction

Erythroderma[(1)] or generalized exfoliative dermatitis is a disease characterized by erythema and scaling of greater than 90% of the body surface. It was first described by VonHebra in 1868.Erythroderma can be fatal even when properly managed, primarily because of its metabolic burden and complications. The majority of patients are diagnosed with psoriasis, spongiotic dermatitis, drug reactions or cutaneous T cell lymphoma. The common drugs causing erythroderma are anti epileptic medication, anti TB drugs[(2)],proton pump inhibitors, anti HIV agents. Common clinical features are erythematous patches on palms and soles with hair loss and nail shedding. Biopsy shows non specific features like hyperkeratosis. The initial management is replacement of nutritional fluids and electrolyte losses. Local skin care measures should be employed .Patient gives history of taking ATT 10 days back. Past literature shows that R,E,Z are well tolerated drugs .We are therefore reporting a case of erythroderma due to INH in a tubercular lymphadenitis.[(3)]

II. Case Report

A 42 year female patient presented to medical OP of SVRRG hospital with complaints of high grade fever since one month, loss of weight and appetite. On general examination the patient had left cervical and axillary lymph nodes. On physical examination the patient was pale, pulse rate, respiratory rate, blood pressure were normal. She was febrile, acyanotic, not a diabetic, not a hypertensive and no clubbing. Rest of the systemic examination was normal. Investigations revealed Hb 6.3gm%, differential count and platelet count was normal, ESR was 112mm.Malarial parasite QBC was negative. Occult blood in motion was negative. Serum creatinine, bilirubin levels were normal. Peripheral blood smear showed severe microcytic hypochromic anaemia. Chemical and microscopic picture of urine was normal. SGOT and SGPT[(4)] were 114u/l and 62u/l respectively. Histopathological report of left cervical and axillary lymph node specimen showed non caseating granulomatous lymphadenitis comparable to tubercular lymphadenitis.AFB smear from lymph node showed Acid fast bacilli[(5).]HIV-1/HIV-2/HIV- 1 and HIV -2 were negative by ELISA[(6).]The provisional diagnosis of tubercular lymphadenitis was made and patient was send to ATT center for further management. Patient was started on combination of (Isoniazid)INH[(7),] (Rifampicin)R, (Ethambutol)E, (Pyrazinamide)Z .After 10 days of starting ATT the patient came back with symptoms of generalized scaling , erythema on face, and all over the body .The patches observed were erythematous patches which increased in size and coalesce to form extensive areas of erythema.The epidermis appeared thin giving a glossy appearance to the skin. Heavy crusts were seen on scalp. Generalised erythrodermal plaques were seen. The patient was admitted in dermatology wards for further treatment .INH was stopped and she was given I.V fluids, electrolytes to combat dehydration and malnutrition .Local skin care measures such as oat meal bath as well as dressing to weep off the crusted sites followed by application of bland emollients and low potency corticosteroids like Prednisolone[(8)] 40mg once daily for 15 days was given and slowly the dose was tapered. Secondary infections were treated with Tab. Roxithromycin-150mg for 5 days .Dermatological recovery took place in two weeks. The patient was given modified ATT(

R,Z,E,Lf).The patient was monitered on out patient basis .Now the patient had tolerated the modified regime well.



Erthrodermal Patches Fig.A . Over Scalp area Fig.B**.** Over palms

III. Discussion

As of 2010 India has more reported cases of tuberculosis than any other country. RNTCP[9] (Revised National Tuberculous Control Programme) is the state run tuberculous control iniative of the Government of India .It incorporates the principles of DOTS [10].Tubercular lymphadenitis is a chronic specific granulomatous inflammation of lymph node caused by Mycobacterium tuberculosis.[11]

The tubercular patients are classified into two categories according to WHO guidelines 2010

Category 1 [12]: includes all new patients

Regimen is 2 HRZE daily for 2 months (intensive phase) followed by 4 HR daily(continuation phase)

Category 2 [13]: includes previously treated cases Pending drug sensitive testing. The regimen taken is 2 months

HRZES(S-Streptomycin) daily and 1 HRZE daily (intensive phase) followed by 5 HRE daily (continuation phase).

According to past literature Rifampicin[14] interrupts RNA synthesis by binding to β subunit of mycobacterial DNA dependent RNA polymerase encoded by rpo B gene and blocking its polymerizing function. Side effects are headache, malaise, bone pain , nausea, vomiting ,flu syndrome ,urine and other secretions may become red. Pyrazinamide (Z) [15] is converted inside the mycobacterial cell into an active metabolite pyrazinoic acid by an enzyme (pyrazinamidase)encoded by the pnc A gene. This metabolite gets accumulated in acidic medium and probably inhibits mycolic acid synthesis. Adverse effects are hyperuricaemia, abdominal distress, arthralgia, flushing, fever ,loss of diabetic control. Ethambutol[16] inhibits arabinosyl transferases involved in arabinogalactan synthesis thereby interfering with mycolic acid incorporation in mycobacterial cell wall. Adverse effects are optic neuritis, nausea, fever ,peripheral neuritis. INH acts by inhibiting the synthesis of mycolic acids which are unique fatty acid components of mycobacterial cell wall. Completely absorbed orally and penetrates in all body tissues , tubercular cavities ,placenta and meninges. Metabolised in liver by N-acetylation by NAT2.Excreted in urine. Adverse effects includes lethargy, rashes, fever, acne , and arthralgia. Peripheral neuritis, hepatitis are also seen.INH neurotoxicity is cured by pyridoxine 100mg/day. Rifampicin, Ethambutol, Pyrazinamide usually does not show serious and fatal skin reactions. So when the patient was noticed with erythroderma it may be due to INH .So INH was stopped temporarily and as a treatment to rash, Prednisolone [17]40mg along with iv fluids to counter dehydration was given..Instead of INH levofloxacin[18]750mg given for 15 days along with Rifampicin in the dose of 600mg, Pyrazinamide in the dose of 1000mg, Ethambutol in the dose of 800mg,and follow up was done. When observed after 15 days, it was noticed that the rash had subsided and the same regime was continued for another 15 days. Now when the patient came back for review in order to confirm that the rash was due to INH she was put on INH 50mg /kg in the first week, 100mg/kg in second week, 150mg/kg in third week,300mg/kg in fourth week and the patient was observed for the reactions. It was noticed that the patient showed generalised exfoliative dermatitis[19] with dose of 150mg/kg. This confirms that erythroderma was due to INH .Now INH completely stopped and patient was advised to take R(450mg),P(1000mg),E(800mg), Lfx(750mg) for a period of 2 months (intensive phase) followed by Lfx(750mg),R(450mg) for a period of 4 months(continuation phase).Patient was advised to attend to TBCD outpatient block after 6 months of treatment. And ESR[20], Liver Function test, Total blood counts, SGOT and SOPT were taken and the reports were normal.

IV. Conclusion

This case showed a patient who developed erythroderma after taking ATT regime for tubercular lymphadenitis after 10 days of starting the treatment. After confirming that the reaction is due to INH the alternative drug Levofloxacin 750mg was used in the regime instead of INH which was safe for the patient.

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