

## Research Article



## Case Report on Nevirapine Induced Stevens Johnson Syndrome in HIV-1 Infected Patient

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### ABSTRACT

Patients infected with human immunodeficiency virus-1(HIV-1) are at increased risk of developing severe mucocutaneous drug reactions. Although Numerous medications have been associated with Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) in HIV-infected patients, We report a patient infected with HIV-1 who developed SJS in association with nevirapine. The patient had papular lesions all over the body with burning sensation with elevated hepatic alanine aminotransferase and aspartate aminotransferase enzyme activities. The condition improved with stoppage of nevirapine- Although use of a 2-week lead-in dose of 200 mg per day followed by 200 mg twice a day may reduce the overall risk of rash, with the increasing use of nevirapine the incidence of SJS among patients infected with the HIV-1 virus is likely to increase which is the major challenge for HIV-1-infected individuals and for their treating physicians, it would be unfortunate to limit treatment options unduly for patients because inadequate information was available upon which to make a treatment decision. We hope that our findings will pay the way for the physicians to reduce the adverse drug reaction and also to get the good health outcomes in future. So a strict vigilance is required when a patient was in HAART, to minimize the adverse events.

**Keywords:** Adverse drug reaction, highly active retro viral therapy, Nevirapine, Stevens-johnson syndrome.

### INTRODUCTION

It is estimated that at least 8 million people in low and middle income countries are currently receiving HIV treatment. In this 5.3 million people are currently receiving Anti Retroviral Therapy (ARV). In severe cases, Highly Active Antiretroviral Therapy (HAART) are being used<sup>1</sup>. HAART is the combination of several antiretroviral medicines used to slow the rate at which HIV make copies of itself in the body. A combination of antiretroviral medicines is more effective than using just one medicine (monotherapy) to treat HIV; it is also referred to as an anti- HIV "cocktail" is currently the standard treatment for HIV infection.

Anti retroviral medicines that are often used to treat HIV include Nucleoside/ nucleotide reverse transcriptase inhibitors such as tenofovir, emtricitabine, lamivudine and abacavir. These medicines are often combined with Non nucleoside reverse transcriptase inhibitors such as efavirenz, nevirapine or etravirine. Apart from this, protease inhibitors, integrase inhibitors are combined together in one pill. These HAART regimens succeeded in reducing HIV-RNA level, while an earlier regimen has failed. The advent of highly active antiretroviral therapy (HAART) is now manageable

Nevirapine is an Anti-Retro viral drug comes under the category of Non-Nucleoside Reverse Transcriptase inhibitors(NNRTs) used for the treatment of HIV because of efficacy, good tolerability and comparatively low cost. It binds directly to reverse transcriptase and blocks RNA dependent and DNA dependent DNA polymerase activity, causing destruction of the enzyme's catalytic site. The NNRT's are indicated in combination regimens for HIV, and have succeeded in reducing HIV-RNA levels when an

earlier regimen has failed. Even though out of its effective therapeutic outcome it has certain side effects like skin rashes, nausea, headache, fever, rises in liver enzymes and hepatotoxicity. Stevens Johnson Syndrome (SJS) or Toxic Epidermal Necrolysis (TEN) is an another form of SJS is a potential deadly skin disease that usually results from a drug reaction in which symptoms may occur within hours to weeks of exposure due to triggering agent. The mechanism involved in drug induced Stevens Johnson Syndrome is cytotoxic T cells can express and release perforin and granzyme B, and Fas-FasL interaction, which can cause apoptosis in either caspase-dependent or caspase independent mechanisms. Risk factors for this includes advanced age, Systemic Lupus Erythematosus (SLE), Acquired Immune Deficiency Syndrome (AIDS) & bone marrow transplantation & drugs include NSAIDs, sulphonamides, anticonvulsants, barbiturates, allopurinol etc. We report a patient who was in nevirapine treatment for HIV-1 infection, developed Stevens-Johnson syndrome (SJS).

### CASE REPORT

A 44yr old female, who is a known case of Bipolar disorder for past 20 years, HIV positive diagnosed 1 month before also with oral candidiasis, she was under ART drugs (T.Lamivudine, T.Efavirenz, T.Nevirapine) for past 15 days & sodium valporate for long time. She was admitted to the hospital with the complaints of papular lesions all over the body with burning sensation for 4 days. Ophthalmological examination shows B/L eye lid oedema, conjunctival oedema, dryness of cornea. Laboratory evaluation showed a leucocyte count of  $4.4 \times 10^3/\text{mm}^3$ , lymphocyte 25.8%; packed cell volume of 31.7%, and platelets of  $187 \times 10^3/\text{mm}^3$ . Urinalysis and



serum chemistries were normal. At this time her Red Blood Cell count was  $3.67 \times 10^6/\text{mm}^3$  with haemoglobin 10.2g/dl. Liver function test showed Alanine aminotransferase and Aspartate amino transferase level were elevated.

We Pharm.D students, during our ward rounds and medication chart review, we found that the patient developed with papular lesions, after evaluating with the medical team, patient was diagnosed with Steven Johnson Syndrome & oculo-cutaneous syndrome which was due to nevirapine.

Then the patient was advised to stop Nevirapine and prescribed with the following medications Cefotaxime sodium(anti infective),Potassium chloride & Becosules for electrolyte & nutritional support & Liquid paraffin for E/A for SJS, Dexoren-S (chloramphenicol + Dexamethasone) for oculo-cutaneous syndrome, Fluconazole for oral candidiasis. After 1 week of treatment the patient was relieved from the skin reactions. No recurrence of rash and impairment of hepatic function were recorded in subsequent follow up. Then another combination of HAART was continued, showed positive outcomes.

#### DISCUSSION

In this patient it was identified that after intake of HAART which contains Nevirapine is the major cause for SJS. Although our patient was not re-challenged with nevirapine, the signs and symptoms of this patient were most consistent with nevirapine induced SJS. There is no

evidence on lamivudine and efavirenz -induced TEN or SJS. The causality assessment of SJS with nevirapine using Naranjo's Causality Assessment Scale showed a score of seven. WHO Uppsala Monitoring Centre (UMC) Causality Assessment Criteria also indicated a probable association with nevirapine<sup>2</sup>.

#### CONCLUSION

It was found that Nevirapine induced Stevens Johnson Syndrome in a patient with HIV 1 infection. So physicians should consider this fact before prescribing HAART while treating HIV patients. The risk of severe mucocutaneous adverse reactions associated with nevirapine in HIV-1 infected people appears to be among the highest reported. Although use of a 2-week lead-in dose of 200 mg per day followed by 200 mg twice a day may reduce the overall risk of rash, with the increasing use of nevirapine the incidence of SJS among patients infected with the HIV-1 virus is likely to increase which is the major challenge for HIV-1-infected individuals and for their treating physicians, it would be unfortunate to limit treatment options unduly for patients because inadequate information was available upon which to make a treatment decision. We hope that our findings will pay the way for good health outcomes in future.

#### REFERENCES

1. www.theglobalfund.org/en/about/diseases/hivaids.
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