

A Case Report on Stavudine Induced Lipodystrophy

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ABSTRACT

Drug induced adverse drug reactions are more common in long term therapy particularly in immune compromised patients. Some of the drugs causes Redistribution of body fat (Lipodystrophy) in Human Immunodeficiency Virus (HIV) infected patients and loss of body fat (Lipoatrophy). Stavudine is the one of the first line regimens drugs used for HIV infection belongs to the category of Nucleoside reverse transcriptase enzyme inhibitor (NRTIs). In the present case, we have reported the stavudine induced severe Lipodystrophy (Lipoma). A patient visited the hospital with the symptoms of lump on back of neck as, she received Stavudine fixed dose combination (SLN) as a drug for her diagnosis of HIV for past seven years. After clear examination Lipodystrophy (Lipoma) was confirmed and suspected with the cause due to stavudine fixed dose regimen. The drug was stopped and the patient was opted to surgery for permanent cure. The patient was recovered from her condition and other antiretroviral drugs were recommended for her treatment.

Key words: Antiretroviral therapy, Adverse drug reaction, Lipodystrophy, HIV, Lipoatrophy.

INTRODUCTION

Stavudine is the first line fixed dosage regimen (SLN) for Human Immunodeficiency Virus (HIV) infection from the category of Nucleoside reverse transcriptase enzyme inhibitor (NRTIs). Lactic acidosis is the most common adverse drug reaction of the drug Stavudine.¹ In some studies, it has been reported that the use of Stavudine fixed dosage regimen (SLN) produce the Lipodystrophy syndrome that is called as Lipoma.² Lipodystrophy is the changes in body fat (loss/gain) and associated metabolic disturbances seen in some people living with HIV. This can be genetic or acquired. Drug reaction is most important cause for the development of Lipodystrophy. The following drugs are reported with Lipodystrophy like Stavudine, Zidovudine and protease inhibitors except Atazanavir.³

CASE REPORT

A 28 years old female patient visited to Government General Hospital, Kadapa with complaints of pain at back side of neck region in outpatient ward. She was diagnosed with HIV disease for last eight years and received Zidovudine, Lamivudine and

Nevirapine (ZLN) as initial drug fixed dose combinations of 300mg, 150mg and 200 mg respectively in a single tablet twice daily. As she found anaemic (Hb<8 mg/dl) after one year with this fixed dosage regimen(ZLN) her drug therapy was changed to Stavudine, Lamivudine and Nevirapine single tablet fixed dosage regimen (SLN) twice daily. After usage of SLN fixed dosage combination for seven years she developed lump at back side of neck that is fat accumulation. During her visit after clear examination the condition was diagnosed as drug induced Lipodystrophy and the suspected drug was Stavudine fixed dosage regimen (NRTIs) by the ART Physician. Her CD4+T-cell count was 878 cells/mm.³

OUTCOME AND FOLLOW-UP

After suspecting the condition, the patient was advised to stop Stavudine fixed dosage regimen (SLN) and Prescribed with another antiretroviral regimen that is Tenofovir, Lamivudine and 300mg, 300mg, 600mg respectively one tablet taken once a day on empty stomach. Patient was continued with the prescribed TLE regimen for five years but left Lipoma condition untreated as

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there are no drug therapies to cure Lipomas. During this period her laboratory investigations shows improvement in her Hb levels as 11.2gm/dl. But, the condition of Lipoma worsened that the patient is experiencing the pain diffusing towards her right shoulder. As she unable to tolerate the pain finally opted for surgery to remove lipoma. After the surgery drug regimen from TLE was changed to Tenofovir, Lamivudine and Nevirapine (TLN).

DISCUSSION

Before Stavudine treatment the patient was prescribed with Zidovudine plus Lamivudine and Nevirapine. The Lipoma was observed after initiation of the Stavudine treatment. Then after withdrawal of the Stavudine Lipoma development was stopped further on other areas of body and the patient is able to tolerate the new HAART therapy that is TLE regimen. In many studies it was reported that Stavudine was the main causative agent for Lipodystrophy that is Lipoma.⁴ National AIDS Control Organisation (NACO) guidelines and other evidences shows possible association between stavudine associated Lipoma as Adverse effect.^{5,6} The possible mechanisms by which anti-retroviral drugs induce lipodystrophy are 1) Mitochondrial toxicity 2) Insulin resistance 3) Adipose tissue gene expression derangements and 4) Proteasome dysfunction.⁷ Delay in discontinuing of Stavudine will still worsened the condition. The genes associated in Lipodystrophy reported in literature are UCP3, pref1.⁸ Post marketing surveillance of stavudine revealed increased abnormal fat re-distributions among the HIV infected patients hence this drug is no longer considered for first line regimens in recent days.

CONCLUSION

Before initiating patients on Anti-retroviral therapy patient education is instrumental regarding the potential adverse events and follow up process. Adverse drug effects are needed to be monitored and assessed using

the physical examinations and laboratory values to know severity and type of Adverse effect. Managing Adverse effects in ART ward are crucial to establish a successful HIV regimen. Early withdrawal of the causative agent is essential to prevent further progression of adverse effect.

Patient Consent

Yes.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

HIV: Human Immunodeficiency Virus, **NRTI:** Nucleoside reverse transcriptase enzyme inhibitor, **HAART:** Highly Active anti-retroviral Therapy.

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