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Art (Anti Retroviral Therapy) Induced Buffalo Hump: Case Report

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ABSTRACT

INTRODUCTION- Anti-retroviral therapy is used for the treatment of patients with HIV. This therapy may also lead to some of the adverse drug reactions among which Zidovudine induced Buffalo Hump is an uncommon adverse drug reaction.

CASE REPORT- In this present study a 38 year old women diagnosed with HIV disease in November 2008 and on ZLN therapy. By 2017 December she developed Buffalo Hump in her dorsal cervical area which was not associated with pain and erythema but discomfort is being observed. Patients was suggested for surgical removal of buffalo hump adipose tissue, but she refused to that. Later after six months of follow up the stabilization of fat in cervical region was observed.

CONCLUSION- Protease inhibitors induced Buffalo hump is common but Ziduvudine induced Buffalo hump is uncommon. Treatment options include surgical removal of fat and exercise in order to maintain body fat.

Keywords: Buffalo Hump, Zidovudine, Adverse drug reaction, Anti-retroviral therapy.

ABBREVIATIONS: ZLN (ZIDOVUDINE, LAMIVUDINE, NEVIRAPINE), HIV (Human Immunodeficiency Virus).

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INTRODUCTION:

The National AIDS Control Organization guidelines for Anti-retroviral treatment currently recommend ARV regimen include a Nucleos(t)ide Reverse Transcriptase Inhibitor (NRTI) with Non Nucleos(t)ide Reverse Transcriptase Inhibitor (NNRTI) or Protease Inhibitor (PI)¹. This regimen is also associated with adverse effects like abnormal fat deposition, involving the dorsal-cervical fat pad (buffalo hump), abdominal region, Breasts or as generalized lipomatosis².

The present study describes ZLN (Zidovudine, Lamivudine, and Nevirapine) therapy induced Buffalo hump. The medication that lead to development of Buffalo hump in ZLN therapy was found to be Zidovudine, in accordance with the data presented by Agarwal Pet al³.

CASE REPORT:

A 38 year old women diagnosed with HIV disease in November 2008 and initiated ZLN therapy. There were no any other medications. There was no history of fever, significant weight loss, cough, loose stools or oral ulcer. Menstrual cycles were normal. At the time of initial visit CD4 count and Hemoglobin levels were found to be 115 cells/dl and 11 g/dl respectively. Lipid profile showed TG (Triglycerides)- 145 mg%, Cholesterol- 98 mg % and VLDL (Very Low Density Lipoprotein) – 20 mg%.

On examination, Patient was well nourished, afebrile with vitals stable. BMI was found to be 28 Kg/m². No pallor, clubbing or Pedal edema. Local examination of the neck shows a soft 11×6 cm diffuse swelling in her dorsal cervical area without any erythema, pain, no similar swelling elsewhere (Figure 1).

Investigations at the time of examination (December 2017) showed Hemoglobin (Hb) 11.2g/dl, ESR (Erythrocyte Sedimentation Rate)- 22mm/hr, Renal function tests, Liver function tests, Chest-X ray are Normal. CD4 count-290 cells/dl, Lipid profile showed, TG (Triglycerides) -172 mg %, Cholesterol- 125 mg

% and VLDL (Very Low Density Lipoprotein) - 39 mg %.

As she developed Buffalo Hump in her dorso-cervical region by December 2017, she was advised for surgical removal Buffalo hump subcutaneous fat due to discomfort but patient refused this option and six months later stabilization of fat in cervical region was observed. Laboratory results after six months were Hb - 12g/dl, TG – 180 mg %, Cholesterol – 130 mg %, VLDL – 42 mg %.



Figure-1 Buffalo Hump of size 11×6 cm

DISCUSSION:

Buffalo Hump or accumulation of dorsocervical fat, were reported about 2-13% in HIV patients with ART medication⁴. Protease Inhibitors have been commonly associated with fat accumulation in reference with WalterPeters et al. study². NRTIs (ZIDOVUDINE, STAVUDINE, and DIDANOSINE) are less likely to cause fat accumulation. Results of Agarwal.P et al. study shows Zidovudine induced buffalo hump is an uncommon adverse effect³.

The exact physiology of Zidovudine induced Lipohypertrophy is poorly understood, where Zidovudine is most commonly known to cause Lipoatrophy by reducing mitochondrial quality and quantity thus leading to apoptosis and loss of fat⁵. Agrawal P et al. commented that NRTIs cause mitochondrial toxicity by inhibiting mitochondrial DNA polymerase thereby interfering with respiratory chain complexes, which results in impaired fatty acid oxidation and intracellular accumulation of TGs and lactate³. Guallar et al. reported that HIV

patients with ART therapy shows specific distribution in gene expression with respect to Buffalo Hump adipose tissue⁶.

NRTIs inhibit mitochondrial DNA polymerase and cause mitochondrial toxicity by interfering with respiratory chain complexes. This result is impaired fatty acid oxidation and intracellular accumulation of TGs and lactate

The risk factors for Buffalo hump are long duration use of Zidovudine, High BMI, abnormal lipid profile and Female sex ⁶. Treatment options to reverse fat redistribution include liposuction, exercise ³.

CONCLUSION:

Zidovudine induced Buffalo Hump is uncommon, but Buffalo Hump is a common Adverse Drug Reaction for Anti-Retroviral Therapy. The diagnosis is based on patient medication use, Lipid profile and Local examination. Treatment options are exercise in order to maintain normal BMI and Surgical removal of Buffalo Hump adipose tissue.

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