



Tenofovir Associated Alopecia Areata- A Rare Phenomenon

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Abstract

We are reporting a thirty-five-year-old male of chronic hepatitis B who was in active phase thus was put on Tenofovir disoproxil fumarate (TDF) 300 mg daily once for last three months. He developed gradually progressive falling of hair after two months of starting of TDF. He had no other general or systemic symptoms or intake of any other drug during this period. All his biochemical labs were normal and HBV DNA quantitative showed declining trend. He was very dogmatic of hair loss after starting of TDF and attributed the same to it. Hence, immediately he was switched from TDF to Entecavir 0.5 mg, as he was non-cirrhotic. After few days of switching of these drugs, his hair loss stopped, and density of his scalp hairs became normal within a month. There are very few reports of Alopecia areata (AA) with TDF, more commonly it is seen with Tenofovir alafenamide (TAF) or with TAF when it is used in combination with other drugs as an antiretroviral therapy for Human immunodeficiency virus (HIV) infection.

Keywords: Tenofovir disoproxil fumarate; Tenofovir alafenamide; Alopecia areata; Antiretroviral treatment; Allergic reaction

Abbreviations: HBV: Hepatitis B Virus; HbsAg: Hepatitis B Surface Antigen; TDF: Tenofovir Disoproxil Fumarate; LFT: Liver Function Test; INR: International Normalized Ratio; AA: Alopecia Areata; TAF: Tenofovir Alafenamide; HIV: Human Immune Deficiency Virus

Introduction

Hepatitis B virus (HBV) has infected affected thirty three percent of the world population, two billion have been infected worldwide and out of them, 350 million suffer from chronic HBV infection. Out of these, approximately 15-40% of patients will develop cirrhosis, liver failure and hepatocellular carcinoma [1-4]. The prevalence of Hepatitis B surface antigen (HBsAg) > 8% of the population is termed high, between 2-7% is called intermediate and < 2% is labelled as low [5]. It is estimated that around 40million HBV carriers are present in India which amounts for 10-15% of total pool of HBV carriers of the world. One lakh people in India die due to HBV infection in India [6,7] and HbsAg positivity ranges between 2-4.7% [8-9].

Case Report

We are reporting a thirty-five-year-old male of chronic hepatitis B who was in active phase and was put on Tenofovir disoproxil fumarate (TDF) 300mg daily once for last three months. His baseline hemogram showed haemoglobin of 11.8g/dL, white blood cell counts 7500/L, normocytic normochromic anaemia. The liver function test (LFT) showed serum bilirubin of 1.5gm%

with conjugated and unconjugated being 0.5gm% and 1 gm% respectively. The transaminases were raised i.e. AST & ALT were 78 and 95I.U. respectively. International normalized ratio (INR) was normal i.e. 1. The HbsAg, and HbeAg were positive and HBE Ab and IgM anti HBC were negative with HBV DNA quantitative load of 325000I.U. per ml. The ultrasound abdomen was normal and Fibro scan score was 10.3Kpa suggestive of F3 fibrosis. The renal function test, blood sugar, serum electrolytes, urine complete examination, thyroid & lipid profile, anti HCV, anti-HIV antibody, IgM HAV antibody, IgM HEV antibody, autoimmune profile, electrocardiogram and chest x-ray were normal. He developed gradually progressive falling of hair after two months of starting of TDF. He had no other general or systemic symptoms or intake of any other drug during this period. All his biochemical labs were normal and HBV DNA quantitative showed declining trend. He was very dogmatic of hair loss after starting of TDF and attributed the same to it. Hence, immediately he was switched from TDF to Entecavir 0.5mg, as he was non-cirrhotic. After few days of switching of these drugs, his hair loss stopped, and density of his scalp hairs became normal within a month (Figure 1).



Figure 1: Showing loss of hairs on scalp by use of Tenofovir.



Figure 2: Showing Thinning of hairs on scalp by use of Tenofovir.

Discussion

There are very few reports of Alopecia areata (AA) with TDF, more commonly it is seen with Tenofovir alafenamide (TAF) or with TAF when it is used in combination with other drugs as an antiretroviral therapy for Human immune deficiency virus (HIV) infection. The various common side effects documented

with TDF are diarrhoea, headache, depression, rash, itching, fever, difficulty falling asleep or staying asleep, gas, heartburn, indigestion and weight loss. The uncommon severe side effects reported with TDF are decreased urination, swelling of feet and ankles, ongoing or worsening bone pain, myalgias, dizziness or light headedness, fast or irregular heartbeat, shortness of breath

and cold or blue-coloured hands & feet [10]. Malhotra et al. [11] showed that TDF 300 mg has minimal side effects like dyspepsia, allergic rash, anxiety, generalized weakness and constipation. The most common side effect noted was dyspepsia which was seen in 15 patients (39.47%), followed by allergic rash in 9 patients (23.68%), anxiety in 8 patients (21.05%), generalized weakness in 3 patients (7.89%) and constipation in 3 patients (7.89%) [11]. One study showed that Six HIV-infected AA females developed alopecia after switching from TDF- to TAF-containing regimens [12]. We searched all the available literature but were not able to pin -point a single case report of alopecia associated with TDF. The limited case reports of alopecia reported are with TAF that to when used in combination with other antiretroviral drugs which themselves can cause alopecia, adding to confusion of it being caused by TAF alone. In our case, it was isolated use of TDF which caused AA and that was completely reversed after switching to Entecavir. It might be the first case report of AA being caused by TDF (Figure 2).

Conclusion

Every drug has well documented side effects but certain are uncommon or never reported or known, thus it is very important that treating specialist should give due importance and accept the version given by the patient. In our case also, initially we were reluctant to believe that TDF is causing alopecia but persistence on patient side makes us believe and for taking corrective step in form of switching TDF to Entecavir which gave fruitful result in form of complete reversal of alopecia.

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