ORIGINAL ARTICLE

Lipid Profile in patients receiving Hepatitis treatment

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ABSTRACT

The aim of the study was to evaluate the lipid profile in the patients suffering from hepatitis C and receiving interferon treatment (after two months). Individuals were divided into two groups including control (n=10) and patients (n=30). The lipid profile (cholesterol, triglyceride, HDL and LDL) was determined by commercially available kits. Variations in the lipid profile was statistically significant ($p<0.05$) between the control and patients groups. It can be concluded that continuous attention towards the patients must be delivered while they are receiving long therapy including interferon. Not only the drug but also the environmental factors are responsible for the variations in the hematological as well as biochemical profile of the body.

Keywords: lipid profile, hepatitis C, interferon

INTRODUCTION

Hepatitis C is a life threatening disease caused by virus. Scientists are making more and more efforts to discover the proper treatment of this problem. Development of Interferon alpha (IFNα) was a big achievement against HCV. The mode of action of Interferon alpha described that I is a potent cytokines which after binding with IFNα receptor activated number of signaling pathways and ultimately blocked the virus RNA replication (Jonasch and Haluska, 2001, Parmar and Platanias, 2003). Different researches believed that IFNα is an essential mediator of the innate antiviral immune response and produced very prominent effects on cellular physiology and cells of the immune system[1,10] (Biron and Sen, 2001; Samuel, 2001). It has been proved by different vivo and vitro studies that IFNα improve the liver histology and reduces the chances of hepatocellular carcinoma in chronic HCV patients (Yoshida *et al*., 2004, George *et al*., 2009). According to different studies it is concluded that about 50% patients with chronic hepatitis C did not show fully clearance of hepatitis C virus sustain with IFNα. However there is strong evidence that IFNα when used therapeutically in chronic hepatitis C patients can participate or exacerbate autoimmune endocrine diseases, especially of thyroid gland. Mostly about 40% patients discontinue the treatment of IFNα. It is also documentary proved that about 14% HCV patients develop thyroid dysfunction.

MATERIALS AND METHODS

The current study was conducted at Jinnah hospital, Lahore from June-2014 to Feb-2015. Total 30 individuals were selected suffering from hepatitis C and receiving interferon treatment and 10 individuals were selected as control group. 1ml blood was taken from all the individuals and plasma was separated from the blood for the evaluation of lipid profile. The patients have completed their two months interferon therapy. Patients were reported with various side effects since they were treated with interferon. Some of the patients were reported with diabetes and some were reported with decreasing their weight. The thyroid gland test were evaluated and it was found that these individuals also had a little bit thyroid malfunctioning. Some of the patients stopped their treatment and some of them showed intension to complete interferon therapy. The lipid profile (cholesterol, triglyceride, HDL and LDL) was determined by commercially available kits.

RESULTS

The lipid profile of the patients receiving interferon therapy after two months showed statistically significant variation (Table 1) among the various lipid parameters. The level of cholesterol (211.52mg/dL), LDL (111.17mg/dL) and triglyceride (209.89mg/dL) was elevated in the patients receiving interferon as compared to control (174.78mg/dL, 89.90mg/dL and 101.50mg/dL respectively). On the other hand, the level of HDL was decreased (49.02mg/dL) statistically significant ($P<0.05$) in the patients as compared to the control (69.60mg/dL) group (Table 1).

Table- 1: Lipid profile of patients receiving interferon

	Control(n=10)	**Patient (n=30)**
Cholesterol	174.78±16.91	211.52±13.16*
LDL	89.90±5.33	111.17±20.56*
HDL	69.60±7.13	49.02±4.42*
Triglyceride	101.50±11.01	209.89±32.35*

*significant figure ($P<0.05$)

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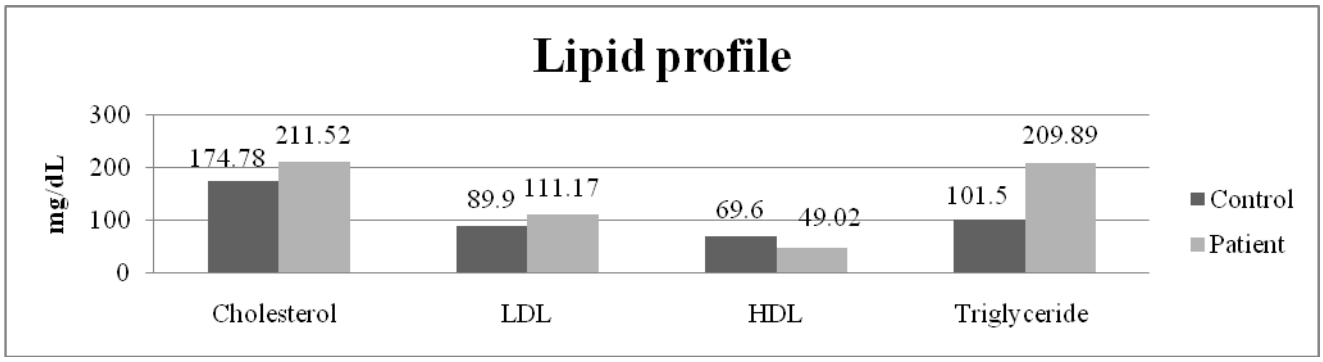

Fig. 1: Lipid profile comparison of patients receiving interferon

DISCUSSION

The hypothalamic pituitary axis is a frequently studied endocrinological system produces several releasing and inhibiting hormones that act on the pituitary gland stimulating the release of pituitary hormones. Thyroid hormones are essential for proper differentiation and development of all cells of human body[6].

This hormone messages the pituitary gland to release thyroid stimulating hormone (TSH), which after conversion sends a message to the adrenal glands produces cortisol. But both cortisol and Corticotrophin-releasing hormone can inhibit TSH production and the conversion of T4 to T3 (thyroid hormones), while every cell in the body uses T3 for healthy functions. The decrease in the levels of T3 can lead to symptoms like: fatigue, cold intolerance, weight gain, memory loss, poor concentration, depression and infertility[4] etc. The present study learned to identify voices speaking a familiar (native) or unfamiliar (foreign) language stress, suppresses the pituitary gland which is responsible for releasing thyroid stimulating hormone (TSH) which then leads to T4 and T3 release. Imbalanced production of thyroid hormone arises from the thyroid gland dysfunction in the body[13]. Thyroid function abnormalities i.e., Hyperthyroidism (Thyrotoxicosis) and Hypothyroidism are among the most common of all endocrine disorders. Hypothyroidism shows reduced metabolic rate. IFN-α/β acts to induce antiviral responses in cells far removed from its site of production via interaction with specific cell surface receptors, the type 1 IFN receptors. These signals to the nucleus through Janus kinase-1 (Jak1) and tyrosine kinase 2 (Tyk2) phosphorylation of the signal transducers and activators of transcription (STATs). Therefore it is an evidence that IFN-α/β activation of each of the STATs under different conditions possible.

Studies have shown that total cholesterol and HDL were decreased in the studied groups[2,11,12] and at the same time variations in the cholesterol and triglyceride were not observed[8,9]. On the other hand, in current study the levels of cholesterol, triglyceride and LDL were increased in the patients while HDL was decreased (Fig. 1).

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