INTRODUCTION

The immensity of literature available on the subject of hepatitis C infection is not unwarranted. This specific infection is responsible for the major bulk of cirrhosis, chronic liver disease and hepatocellular carcinoma. Affecting 3% of the world population, the global nature of the disease leaves little to imagination. Preventive measures to stop the spread of the infection, early detection of the disease and prompt treatment remain the logical mainstays of management throughout the world.

Pegylated interferon alpha along with ribavirin has been considered to be the cornerstone in the management of hepatitis C infection. As is with every other drug regimen this treatment is not without its side effects. The mode of action of these drugs is via modulation of the immune system and antiviral properties. Side effects mentioned in the literature are varied with reported unwanted effects on the cardiac system, mental health and on the thyroid gland. Other authors, others have implicated hepatitis C virus infection to be a cause of this clinical entity in its own right. Others have implicated pegylated interferon as the culprit. The former group in their study quoted the prevalence of thyroid dysfunction in untreated patients of hepatitis C to be 12.5%.

RESULTS

Thyroid dysfunction was identified in 7 patients giving a frequency of 6.9%. Out of these 7 patients only one patient was male while the rest were females. The mean age of the patients with thyroid dysfunction was 39.2 ± 7.13 years.

Methods:

A case control study in which, 203 patients of Chronic, compensated hepatitis C (130 females, 73 males) were included from Baqai University Hospital Karachi Liver Clinic (b/w Jan 2010–Jun 2014). The participants were checked for thyroidal dysfunction at the onset. 17 patients were found to have thyroid dysfunction in the beginning and were excluded from the total 203 cases, then out of the remaining 186 cases, 101 patients (who were not having TD initially) opted for treatment with pegylated interferon/ribavarin (Treated Group) and the rest (85 cases) were taken as control group.

Pegylated interferon based therapy related thyroidal dysfunction in chronic hepatitis C is statistically significant in untreated patients of hepatitis C.

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A total one hundred and eighty six were enrolled in the study with a mean age of 42.1 ± 10.48 years. Of these 72(38.7%) were males and 114(61.3%) were females with a male to female ratio of 1:1.6. In the entire group, 22(11.8%) had sub-clinical hypothyroidism and 5(7.1%) had overt hypothyroidism (Table 1). The treatment with combination therapy was significant for development of thyroid dysfunction in patients with hepatitis C. Thyroid dysfunction was identified in 7 of the patients giving a frequency of 6%. Out of these 7 patients only one patient is male while the rest are females. The mean age of the patients with thyroid dysfunction was 39.2 ± 7.13 years. Amongst 44 cases of thyroid dysfunctions, 2 (28.5%) had overt hypothyroidism and 5 (71.4%) had sub-clinical hypothyroidism (Table 1). The treatment with combination therapy was significant for development of thyroid dysfunction in patients with hepatitis C.

The chronic nature of hepatitis C virus is the main reason behind the pathological infections it causes on its sufferers. Though the symptomatic effects may be acute leading to an early detection, this occurs only in 15% of the cases.12 This implies that 85% of the affected, will have chronic initially asymptomatic disease that will lead to scarring and fibrosis of the liver causing a myriad of diseases. Though the main route of transmission is the blood to blood contact via transfusions and unsterile equipment, vertical transmission occurs in 5% of the cases putting the children of the ‘asymptomatic’ carrier at risk with a lifelong affliction.13,14 Therefore since the identification of the virus in 1989,15 effective treatment has been researched. Combination therapy with interferon is now the current standard.16 With regards to the factors influencing outcomes of the treatment, treatment outcome is dependent on multiple influences. First is the genotype of the virus, amongst the three genotypes, type 2 and three have a better prognosis with cure rates of up to 50%. Other effect modifiers include age, viral load, gender, compliance, duration of diseases etc.

The debate about the association between hepatitis C infection and thyroid disease is multifaceted one. One of the primary issues is, which is the primary responsible entity responsible in the development of thyroid dysfunction. The virus itself or the subsequent treatment both have been implicated in researches.2-7 and it seems both entities have to be kept in mind while managing a patient during the course of treatment. As Zhao et al reported that the Thyroid peroxidase antibody is the factor responsible behind the development of thyroid dysfunction in the untreated patients and Friedlich-Rut at al noted the direct destruction of the gland as the mechanism in patients on treatment for the infection. There also has been controversy regarding which interferon therapy, the classic or the pegylated, has more degree of thyroid dysfunction with some authors implicating the pegylated interferon.

There is a definitive association between the treatment of hepatitis C with interferon and thyroid dysfunction. This however may be multifactorial governed by multiple factors and not alone due to the treatment outcome, the classic or the pegylated, has more degree of thyroid dysfunction in patients receiving interferon. There has also been controversy regarding which interferon therapy, the classic or the pegylated, has more degree of thyroid dysfunction with some authors implicating the pegylated interferon.

The frequency of thyroid dysfunction in the patients being treated for hepatitis C with interferon and ribavirin is to be 6%. None of the patients have received any treatment for hepatitis C developed thyroid dysfunction. The frequency of thyroid dysfunction in this study is lower than that reported by Jamil et al,17 who placed it at 12%. However they reported a frequency of 7% when using classic interferon-alpha2b in combination therapy. This frequency is comparable to the findings of this study. Barut and colleagues,18 found this frequency to be around 1 feeling of the association of thyroid dysfunction with the treatment for hepatitis C may be governed by multiple factors and not alone due to the drugs used.

CONCLUSION

There is a definitive association between the treatment of Hepatitis C with interferon and ribavirin and development of thyroid dysfunction. This however may be multifactorial and further investigation may be needed to assess effect modifiers. However, in light of current investigations it is imperative that the patients on therapy for hepatitis C must be actively screened for thyroid dysfunction and managed accordingly.

REFERENCES
