

Overt Thyroid Dysfunction During Treatment of Hepatitis C Patients with Interferon and Ribavirin

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ABSTRACT

Objective: To find out the thyroid dysfunctions during treatment hepatitis C patients with Interferon and Ribavirin.

Study Design: Observational / descriptive study

Place and Duration of Study: This study was carried out at the Teaching Hospital, Ghazi Khan Medical College, DG Khan from April 2015 to January 2016.

Patients and Methods: Fifty patients of chronic HCV were enrolled.

Results: Out of 50 treated patients 35 were female and 15 were male. Fifteen (15%) patients developed thyroid dysfunction and out of these 15 patients (11 female [73.3%] and 4 male [26.7%]). Ten (66.6%) out of 15 patients developed hypothyroidism and 5(33.3%) out of 15 patients developed hyperthyroidism. Seven (70%) out of 10 patients who developed hypothyroidism needed levothyroxine therapy. Two (40%) out of 5 patients who developed hyperthyroidism needed carbimazol therapy for their symptoms and disease control. All patients completed hepatitis C treatment with combined Peg-Interferon Alpha-2a and Ribavirin therapy.

Conclusion: The involvement between thyroid dysfunction in hepatitis C individuals and management with IFN-alpha and RIBA.

Key Words: Interferon Alpha-2a, Ribavirin, Chronic hepatitis C

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INTRODUCTION

The most important reason of chronic hepatic disease, cirrhosis and hepatocellular carcinoma is hepatitis C. The global prevalence is 3% encompassing 170 million victims. 4 million new cases are added to the pool due to contaminated injection needles, transfusion contamination and parents contact.¹ The trend has stabilized now-a-days.² In North America, it is the most common chronic blood borne infection.³ In women with chronic HCV infection, thyroid disorders are common. The patients with HCV infection presents the anti-thyroid antibodies are 5% to 17%, 2%-13% patients have hypothyroidism.⁴ Elder women have the maximum frequency of both thyroid antibodies and thyroid disease. Most patients are asymptomatic hypothyroidism and do not need exact management. It is debated whether or not the prevalence is higher than in age and sex-matched controls.⁵

IFN therapy is not a contraindication in the presence of low titres of autoantibodies. In patients with high titres since recovery is complete at the end of therapy interruption of IFN therapy is not needed. TSH and autoantibodies should be checked before, during and after IFN treatment, and counselling should be offered to patients regarding thyroid dysfunction.⁶ This review questions the relationship of IFN and ribavirin (RIBA) for treatment of HCV and thyroid dysfunction.

Several extrahepatic diseases that occur with chronic HCV come out to be straight associated to the viral infection. These comprised cryoglobulinemia, lymphoma, thyroiditis, lichen planus and porphyria cutanea tarda.⁷⁻¹⁰ This may also be a side effect of interferon (IFN)-based treatment. Chronic HCV virus infection has the highest prevalence of thyroid autoantibodies and disorders.^{11,12}

MATERIALS AND METHODS

This prospective study was carried out Teaching Hospital, Ghazi Khan Medical College, DG Khan from July 2015 to January 2016. Fifty patients of chronic HCV were enrolled.

RESULTS

Out of 50 patients, 35 were female and 15 were male. During treatment with combination of Peg-interferon alpha-2a and Ribavirin therapy, among 15 patients, 11 females (73.3%) and 4 males (26.7%) developed overt thyroid disease and were diagnosed clinically and

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biochemically suffering from thyroid dysfunction. Ten (66.6%) suffered from overt hypothyroidism and 5 (33.3%) patients developed hyperthyroidism. Fatigue, weight loss, irritability and nervousness were reported by all five patients with hyperthyroidism but palpitations and resting tremors occurred in only 2 out of the 5 patients also had in hands. Seven (70%) patients having hypothyroidism were treated with levothyroxine and they responded well to the treatment clinically and biochemically and 6(60%) had normal levels of TSH management of chronic HCV. Most patients were infected with genotype 3.

DISCUSSION

The prevalence of thyroid dysfunction with interferon therapy in patients contaminated with chronic hepatitis C ranges from 2.5% to 30%^{11,12}, the mean being of 6.6%.¹³ The prevalence of Hypothyroidism (3.8%) was slightly higher than hyperthyroidism (2.8%). The fact that higher doses of interferon alpha are used to treat chronic hepatitis-B infection¹⁴ but thyroid disease is less common in chronic hepatitis B infection when compared with hepatitis-C treated patients. This points to synergistic effects of interferon therapy and HCV infection in the causation of thyroid disease. It is known that Interferon results in the commencement and propagation of dendritic and memory T cells.¹³ The destruction of thyroid gland is caused by auto-antibodies subsequent to interface with hepatitis-C virus particle present in it.¹⁵ When interferon alpha is added further obliteration of reddened gland occurs. Moreover interferon therapy has direct toxic effect on thyroid cells.¹⁶ This leads to biphasic thyroid response in the form of hypo and hyperthyroidism.

4.7% to 27.8% of patients develop thyroid dysfunction with this therapy, the mean being frequency 12.1%. When interferon is used alone the frequency is as low as 6.6%.¹⁷ The percentage proportion of hypothyroidism to hyperthyroidism in many studies is higher (8.1%: 3.8%) compared to our study (10%: 5%). Moreover female percentage proportion was higher internationally (17.7%: 8.3%) in relation to our study (11%: 4%). Overall our prevalence of thyroid disorders (15%) was higher than colleagues elsewhere reported.(3%).¹⁸ As expected fatigue, myalgias and depression were common with hypothyroidism. Therefore thyroid function test should be routinely performed.¹⁷

We agree with international literature that combination therapy should be sustained; even in those who develop overt thyroid disease.¹² Most thyroid disorders do not need long-standing therapy and often return to normal. Workers¹⁸ have found that interferon alpha induced thyroid related disorders were reversible in 61.2% of cases (55.8% hypothyroidism and 69.7% hyperthyroidism).

CONCLUSION

The association among thyroid dysfunction in hepatitis C individuals and management with IFN-alpha and RIBA exists.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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