A Case of Interferon Induced Hypothyroidism

Thirty years old male, a case of Chronic Hepatitis C, was initiated on therapy with interferon (IFN) and ribavirin based on viral load and liver biopsy. After about three months, he complained of facial puffiness, weight gain, cold intolerance and difficulty in speaking.

On examination he was obese and had facial puffiness. He spoke slowly with a heavy voice. The thyroid gland was not palpable. He had coarse skin and a large tongue. The heart sounds were feeble. The ankle reflexes showed slow relaxation. On investigation, his hematological and biochemical profile were normal. The electrocardiogram showed low voltage complexes. Echocardiography revealed significant pericardial effusion. A thyroid profile was done which showed: T3 – 0.2 ng/ml (0.85 – 2.0), T4 – 0.15 mcg/dl (5.1 – 13.5) and TSH – 70.13 mIU/L (0.3 – 6.0). Anti TPO antibodies were 349.90 IU/L (0.5 – 20). He was diagnosed as a case of autoimmune thyroid disease with hypothyroidism. IFN was stopped and thyroxine supplementation was started. The patient made gradual recovery and is presently asymptomatic.

Hypothyroidism is a common endocrine disorder. Autoimmunity is the leading cause of hypothyroidism. Other causes are iodine deficiency, surgery and neck radiation. Thyroid dysfunction with chronic HCV infection has been reported both before and after IFN treatment [1]. It may be a side effect of IFN therapy or may also be a direct consequence of HCV infection. It is seen more frequently in patients on IFN-alpha with chronic HCV infection than in chronic hepatitis B infection, suggesting a synergistic role of HCV and IFN-alpha [2].

HCV may result in an induction of IFN in the thyroid gland which activates natural killer cells, leading to proliferation of memory T cells and prevention of apoptosis, thus raising the thyroid auto-antibodies titer. The major risk factor for developing thyroid disease during antiviral therapy is the presence of anti-thyroid antibodies (anti-thyroid peroxidase) [3].

IFN related autoimmune thyroid disease may follow the natural history of Hashimoto's thyroiditis or post-partum thyroiditis [1]. If not routinely evaluated the thyroid dysfunction could remain undiagnosed. Therefore, it is recommended that the screening for thyroid function test should be routinely performed before, during and after treatment in patients with HCV infection.

The management of IFN-induced thyroid dysfunction in chronic HCV infection is a matter of debate. The presence of auto-antibodies should not be regarded as a contraindication for IFN therapy. Most patients with increased antibody titers or thyroid dysfunction, especially hypothyroidism, recover after completing therapy [2]. Interruption of IFN therapy may not always be required except in patients with severe symptoms. Some patients treated with thyroxine before IFN-alpha treatment may require increased doses during therapy and decreased doses after IFN-alpha therapy has been completed.

We postulate that our patient had clinical and immunological evidence of autoimmune thyroid disease. The concomitant IFN-alpha therapy may have led to unmasking of the disease and precipitation of hypothyroidism. We also reiterate the value of testing for thyroid dysfunction and anti-thyroid antibodies in patients with HCV infection planned for IFN therapy.

References

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ANSWERS TO MCQS

1. (b),	2. (d),	3. (b),	4. (b),	5. (d),
6. (a),	7. (d),	8. (c),	9. (b),	10. (d),
11. (d),	12. (b),	13. (d),	14. (a),	15. (c).