Thyroid Storm Precipitated by Radioactive Iodine Therapy

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Sir, Thyroid storm or thyrotoxic crisis is a rare but life-threatening condition requiring immediate treatment, preferably in an intensive care unit. Its incidence is about 1-2% among patients with overt hyperthyroidism. A thyrotoxic crisis occurs predominantly in the elderly and is three to five times more common in women than in men. The overall mortality is 10-20%. Even though the pathogenesis is still not fully understood, an increased sensitivity to catecholamines appears to be an important mechanism, and a number of endogenous and exogenous stress factors that can provoke the onset of a thyrotoxic storm have been identified.1 We present a case where the cause of precipitation of thyroid storm was improper preparation of patient for Radioactive iodine treatment.

A 33 year female came to emergency department with chief complaints of breathlessness at rest, cough with minimal expectoration, fever high grade without chills since 4-5 days. There was no history of chest pain, palpitations, syncope, oliguria, or rash over body.

On detailed enquiry, patient gave history of palpitations, weight loss, anxiety, heat intolerance, excessive sweating, oligomenorrhea, and was diagnosed to have hyperthyroidism. Her thyroid function were as follows; T3: 152ng/dl (60-200), T4: 6.1ng/dl (0.7-1.6). TSH: 0.05(0.3-5.5). ECG suggestive sinus tachycardia. Chest x-ray suggestive diffuse bilateral fluffy infiltrates.

Hence, a diagnosis a thyroid storm/thyrotoxic crisis with acute heart failure was made. Patient did not receive any antithyroid drugs prior to radioactive iodine therapy which resulted in precipitation of thyroid storm. Patient was treated with Neomercazole and supportive inotropes. Potassium iodide / Lugol’s iodine is not routinely available at our emergency department nor with the chemists nearby, hence was not given to this patient. Patient started showing signs of improvement from Day 3 and was completely stable by Day 10. Patient was discharged on Day 15 and is routinely following up with us.

Thyroid storm represents the extreme manifestation of thyrotoxicosis as a true endocrine emergency.1 Factors precipitating thyroid storm are any acute illness such as stroke, infection, trauma, diabetic ketoacidosis, surgery (especially on thyroid), radioiodine treatment of partially or untreated patient of hyperthyroidism (Jod Basedow phenomenon.). Clinical features are fever, profuse sweating, poor feeding and weight loss, respiratory distress, fatigue, nausea and vomiting, diarrhea, abdominal pain, jaundice, anxiety, altered behaviour, seizures and coma.2

Radioiodine causes progressive destruction of thyroid cells and hence used for treatment in hyperthyroidism. Patient should be given a prior course of antithyroid drugs at least one month before radioiodine is given. This is done to minimise risk of thyrotoxic crisis. Before radioiodine is given, antithyroid drugs should be stopped because if continued all iodine receptors will be downregulated and there will not be any uptake of radioiodine.3 Carbimazole/methimazole can be stopped 2-3 days before radioiodine whereas propylthiouracil has to be stopped weeks before as effects last longer. Dose of radioiodine Iodine131 is 5mCi to 15mCi. After radioiodine is given, pt should still be continued on antithyroid drugs as iodine effects may take months to appear.

References