

Is it safe to treat hyperthyroid patients with I-131 without fear of thyroid storm?

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Objectives: Thyroid storm is extremely rare. However, hyperthyroid patients with severe thyrotoxicosis are frequently not treated immediately with I-131 for fear of thyroid storm but are placed on thiouracil drugs for varying periods of time. We demonstrate herein that it is safe to treat these patients with I-131, without pretreatment with thiouracil drugs, provided they do not have complicating intercurrent disease. Our definition of severe hyperthyroidism includes marked signs and symptoms of thyrotoxicosis, suppressed TSH, markedly elevated free T4 and/or free T3 and elevated radioactive iodine uptake (RAIU) (>30%) at 4 or 24 hours. Our diagnostic criteria for thyroid storm include two or more findings of fever (>38°C, 100°F), severe tachycardia, high pulse pressure, agitation with tremors, flushing, sweating, heart failure, nausea, vomiting, diarrhea, jaundice associated with high free T4 and/or free T3. **Methods:** Patients were selected retrospectively for the period between August 2003 and December 2004. One hundred and twenty-two patient visits were identified. These patients were treated with 370–740 MBq (10–20 mCi) of I-131 and were evaluated for any evidence of thyroid storm. Most of the patients were placed on beta blocker drugs at the time of initial I-131 therapy; these were continued for at least two months, when the first follow-up visit occurred. At the time of I-131 therapy, it is our policy to educate the patients to seek immediate medical attention for exacerbation of symptoms of thyrotoxicosis. **Results:** Not one of these patients developed thyroid storm. A subset of 25% of these cases with higher potential for thyroid storm (RAIU more than 65%, very marked signs and symptoms, and very markedly elevated free T4 and/or free T3) also tolerated the I-131 therapy well with marked clinical improvement and no exacerbation of the thyrotoxic state. **Conclusion:** It is safe to administer I-131 to patients who are severely hyperthyroid without fear of thyroid storm, provided beta blockade drugs are used to control the signs and symptoms; patient education is also important. With these steps, 4–6 weeks of prior medical treatment may not be necessary.

Key words: thyroid storm, I-131, thyrotoxicosis