

CARBIMAZOLE-INDUCED DERMATITIS IN GRAVES' DISEASE: DOSE DEPENDENT

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Carbimazole-induced dermatitis in Graves' disease: dose dependent

A 24-year-old lady came to the Endocrinology Out-patient Department of a tertiary care hospital with darkening of the skin over the dorsal and palmar aspects of both the hands and feet (**Figures 1 and 2**). She also complained of severe itching at the sites of colour change. Her case records revealed that one month prior to the current visit, she had been diagnosed to have Graves' disease (**Figure 3**) and was started on tablet carbimazole (Neomercazole) 10 mg thrice daily and tablet propranolol 40 mg once daily. Two weeks after intake of medications she developed multiple small blisters over the fingers and toes. She also had cramps, fever and dry cough. Accidental rupture of the blisters with her fingernails resulted in watery discharge. This was

associated with intense itching over the lesions. The patient stopped the drug on her own and she found that the blisters and itching began to subside. The patient was admitted with a provisional diagnosis of irritant dermatitis for observation and investigations. Haemogram suggested normocytic and normochromic erythrocytes with adequate number of platelets; mild leucopenia with normal eosinophil count. The KOH mount for fungus was negative, and also the Grams' staining for gram positive cocci, gram negative rods and yeast cells was negative. The patient was restarted on carbimazole tablets 5 mg twice a day. Skin biopsy, other investigations like DCT, ICT, CPK, LDH, ECG, Echo, viral markers and ANA were suggested for the patient. The patient did not report for these investigations. However, on enquiry over the telephone, she said that the skin lesions were improving and she was fine with the reduced dose of carbimazole. She also informed to be taking the tablets regularly.

Carbimazole is the first-line antithyroid drug usually prescribed for hyperthyroid patients in India unless otherwise contraindicated.^[1] Carbimazole is a thioureylene compound classified under the thioamide group of drugs, which are “thyroid hormone synthesis inhibitors”. Carbimazole, after absorption, gets rapidly metabolized into methimazole. And methimazole acts by competitively inhibiting the enzyme ‘thyroid peroxidase’ (TPO), whereby hampering the steps of oxidation, organification (iodination) and coupling. The common adverse effects associated with the use of carbimazole are maculopapular pruritic rash, urticarial rash, fever, arthralgia and GI side effects like nausea. Other rare side effects are lymphadenopathy, hypoprothrombinemia, hepatitis, exfoliative dermatitis, polyserositis, aplastic anaemia, agranulocytosis, and lupus erythematosus-like syndromes.^[2-5] These adverse effects may lead to withdrawal of the antithyroid drug followed by symptomatic treatment, replacement with another drug like propylthiouracil or surgical management of hyperthyroidism or treatment with radioiodine. The adverse effects of methimazole or carbimazole are mainly dose related whereas those of propylthiouracil are less likely to be dose related.^[6] ANCA positive cases of propylthiouracil-or carbimazole- induced immune vasculitis have been reported in literature^[7] but non-immune mediated dose dependent macular rash has not yet been reported. In the above case, carbimazole- induced rash appears to be dose dependent as it subsided on reducing the dose of the offending agent. A dose reduction in carbimazole may be tried in situations provided a euthyroid status can be maintained with the reduced dose.

No. of figures: 3



Figure1. Dorsal aspect of the hands



Figure2. Dorsal aspect of the feet



Figure3. Left lateral view of the neck illustrating the thyroid swelling

REFERENCES

1. Kota SK, Meher LK, Kota SK, Jammula S, Modi KD. Carbimazole-induced cholestatic hepatitis in Graves' disease. *Indian J Endocr Metab*, 2013; 17(2): 326-8.
2. Brent GA, Koenig RJ. Thyroid and anti-thyroid drugs. In: Brunton LL, Chabner BA, Knollmann BC, editors. *Goodman & Gilman's pharmacological basis of therapeutics*. 12th ed. New York: The McGraw-Hill Companies, Inc; 2011.
3. Al-Niaini F. Drug eruptions in dermatology. *Expert Rev. Dermatol*, 2011; 6(3): 273-86.
4. Carbimazole/levothyroxine sodium/lithium: Various toxicities: case report. *Reactions Weekly*, 2012;1426(1):16
5. Carbimazole/sodium perchlorate: Toxic epidermal necrolysis and pseudo-hypocalcaemia in an elderly patient: case report. *Reactions Weekly*, 2013; 1436(1): 11.
6. Cooper DS. Antithyroid drugs. *N Engl J Med* 2005; 352: 905-17.
7. Pandey S, Kushwaha RS, Mehndiratta P, Mehndiratta MM. Carbimazole induced ANCA positive vasculitis. *J Assoc Physicians India*, 2008; 56: 801-3.