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IMAGES IN MEDICINE

Hypersensitivity to levothyroxine in a substitutional therapy of Hashimoto syndrome — case report

Short title: Hypersensitivity to levothyroxine

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ABSTRACT

A 25-year-old woman was admitted to the Emergency Ward because of a severe allergic reaction. The clinical picture contained facial swelling, a rash of the face and neck (fig. 1.), skin itching and rumour, and dyspnoea with difficulties in swallowing. A detailed interview was collected, with particular emphasis on plausible allergens. The only substance that was new in the patient's surroundings was the intake of levothyroxine according to Hashimoto syndrome, which was diagnosed a few days before.

Given the suspicion of hypersensitivity to levothyroxine, the patient was admitted to the Clinic of Endocrinology. At first, the substitution of L-thyroxine was interrupted. Then, the preparation of L-thyroxine was changed to the liquid form and the patient started to take this under the observation of the ward's medical personnel. After 5 days of novel preparation

intake, no hypersensitivity reaction was observed – therefore the patient was discharged home with additional advice to attend the Allergology Ambulatory.

Keywords: hypersensitivity; levothyroxine; Hashimoto thyroiditis; endocrinology; allergology

A 25-year-old woman was admitted to the Emergency Ward because of a severe allergic reaction. The clinical picture contained facial swelling, a rash of the face and neck (Fig. 1), skin itching and rumour, and dyspnoea with difficulties in swallowing. The symptoms started about midnight, and then the patient attended the Family Medicine Ambulatory, where the physician called for the ambulance.

In the Emergency Ward, the patient's general status improved after the administration of antazoline, steroid drugs and liquid therapy. A detailed interview was collected, with particular emphasis on plausible allergens. The patient denied the usage of any new or suspicious: food types, spices, cosmetics, detergents or clothes made of novel materials. The only substance that was new in the patient's surroundings was the intake of levothyroxine according to Hashimoto syndrome, which was diagnosed a few days before (the symptoms of the allergic reaction occurred about 48–72 hours after the beginning of therapy). Given the suspicion of hypersensitivity to levothyroxine, the patient was admitted to the Clinic of Endocrinology. At first, the substitution of L-thyroxine was interrupted and the thyroidal laboratory tests were repeated, confirming the Hashimoto thyroiditis (elevated antibodies: ATG 4.6 IU/mL; ATPO 4250.9 U/mL). Then, the preparation of L-thyroxine was changed to the liquid form and the patient started to take this under the observation of the ward's medical personnel. The interview focused on potential allergens and was repeated 3 times, without any change. After 5 days of novel prepareate intake, no hypersensitivity reaction was observed — therefore the patient was discharged home with additional advice to attend the Allergology Ambulatory.

After 6 months from the discharge from the Clinic, the patient still achieves euthyreosis using the liquid form of levothyroxine. The physician from the Allergology Ambulatory performed tests for the routine allergens with negative results and suggested performing a provocative trial (which was withdrawn according to good tolerance of liquid levothyroxine).

The scientific literature reports about 10–20 cases of hypersensitivity induced by oral levothyroxine preparations [1, 2]. Usually, the treatment is based on a 14-day long desensitization, which finishes successfully [3]. The most commonly reported symptoms contain itchy rash, urticaria, facial oedema, difficulties in swallowing and dyspnoea, but there

is a case reporting severe liver damage caused by levothyroxine [4, 5]. A very rare, however, levothyroxine-induced hypersensitivity may occur in patients treated for hypothyroidism.

Article information

Ethics statement: *The patient agreed to the publication of her data and images in an anonymous form.*

Authors' contribution: *Conceptualization — MW and ASz-P; methodology — all authors; software — JKG and KU; validation — ASz-P and BM-M; formal analysis — ASz-P and MW; investigation — all authors; resources — all authors; data curation — all authors; writing — original draft preparation — all authors.; writing — review and editing — ASz-P and MW; visualization — all authors; supervision — ASz-P and BM-M; project administration — JKG and ASz-P.*

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Figure 1. The photos show the skin rash and the facial oedema during the hypersensitivity reaction. The last photo (D) was taken after a partial remission in the Emergency Ward