A Forgotten but Important Drug on Preanaesthetic Evaluation: Amiodarone

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Dear Editor,

The purpose of preoperative evaluation is to reduce perioperative morbidity and mortality by guiding the anaesthesia plan. All the medications that the patient has used recently and the allergic reactions should be completely known for an effective preoperative evaluation. In this case, we attempted to emphasize that the patients using amiodarone in the preoperative period are under the risk of thyroid dysfunction, and the thyroid functions are absolutely required to be evaluated before surgery.

A 50-year-old male patient applied to our anaesthesia polyclinic for a pre-anaesthetic visit for the purpose of elective cholecystectomy. Although the patient did not have any known thyroid dysfunction previously, he had a history of the use of amiodarone among the drugs he used previously; thus, the thyroid functions were examined and the results were as follows: TSH: 0.04 µIU mL⁻¹ (0.34–5.36), fT4: 2.28 ng dL⁻¹ (0.61–1.12) and fT3: 3.36 pg dL⁻¹ (2.5–3.9). When the medical records of the patient were checked, it was observed that he was hospitalized in the cardiology clinic because of ventricular tachycardia 6 months ago, and the thyroid functions were normal during hospitalization. Intravenous amiodarone infusion was administered to the patient with ventricular arrhythmias and continued for 3 days. Then, a 200-mg tablet was prescribed to be used for 3 months. After the patient used amiodarone 200 mg for 3 months, the medication was discontinued under the supervision of a cardiologist. The patient did not use amiodarone for 3 months. Considering that thyroid dysfunction was associated with amiodarone, after the consultation of endocrinology specialists, antithyroid treatment was started and the elective surgery procedures were not selected until the patient became euthyroid.

Amiodarone is an antiarrhythmic drug that is widely used, has a broad spectrum, is used in the treatment of all ventricular and atrial arrhythmias and contains iodine. The medicament that is the derivative of benzofturan contains iodine as much as 37% of its weight and is structurally similar to the thyroid hormone (1). After taking a 200-mg tablet that contains approximately 75 mg of iodine, 6 mg of iodine release is achieved per day. Normally, if the recommended daily intake of iodine is considered, the 200-mg tablet causes approximately 20 times more iodine release than the daily iodine intake. Because it is fat-soluble, it has a half-life that may take up to approximately 100 days. After the discontinuation of the drug, its effect still continues. Thyroid dysfunction may develop in 2%–10% of the patients using amiodarone. This rate may be higher in communities where the iodine intake is low (2). Thyrotoxicosis associated with amiodarone may generally develop in the early periods of amiodarone therapy or months or even years after the discontinuation of medication. Two types of thyrotoxicosis related to amiodarone have been identified. Type 1 generally occurs in those with thyroid disease, generally on the basis of nodular or diffuse goitre. Synthesis of T3 and T4 has increased. Perchlorate and methimazole are used in Type 1 amiodarone hyperthyroidism. Type 2 occurs in patients who had no thyroid function disorder previously. Excessive secretion of T3 and T4 occurs because of destructive thyroiditis (3). If the clinical picture is progressing slightly in Type 2, for a period, spontaneous remission can be awaited. If a much more severe clinical picture than the beginning has developed and a sufficient improvement is not seen, corticosteroid therapy is initiated.

In the literature, because of amiodarone-induced thyrotoxicosis, cases that show a fatal course during anaesthesia have been reported (4). Thyroidectomy may be necessary in patients in whom medical therapy has failed. There are patients who un-
derwent thyroidectomy with regional anaesthesia techniques in the literature (5).

Before and during the amiodarone treatment, thyroid function tests of the patients should be viewed and checked in intervals of at least 3 months. As the total body iodine stores remain high for 9 months after the amiodarone therapy is discontinued, the follow-up period should increase to at least up to 9 months. Because thyroid dysfunction may develop after the discontinuation of the treatment, it is recommended that the thyroid function tests should be performed at least once a year. Hyperthyroidism caused by amiodarone can develop in patients with underlying thyroid disease with a single dose in the early stages, and it may develop months after the discontinuation of amiodarone therapy, as in our patient.

The history of an antiarrhythmic drug such as amiodarone should be questioned during the pre-anaesthetic visit. Thyroid function tests of the patients taking amiodarone should absolutely be assessed regardless of the type of surgery that they will undergo.

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**References**