ANNALES
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA
VOL. LIX, N 2, 181 SECTIO D 2004

Clinical Hospital No 1 of Skubiszewski Medical University of Lublin

GRAŻYNA ORLICZ-SZCZĘSNA, PIOTR DĄBROWSKI

Substitutive administration of thyroxine in patients after strumectomy

The term "substitution" in medicine means supplementation of absent or deficient ingredient in the body to the normal level. In endocrinology the substitution of insulin, the growth hormone, estrogen, progesterone, testosterone, suprarenal steroids, vasopressin and thyroxine is applied (1). The indication for undertaking the treatment with the deficient hormone is the presence of clinical symptoms of deficiency of this hormone. It may result from the damage of the endocrine gland producing this particular hormone as a result of the disease or following surgical removal of the gland.

The most common causes of hypothyreosis requiring complementary administration of thyroxine are: the condition following the thyroid surgery and hypotheosis due to autoimmunologic diseases of thyroid (Graves-Basedow disease and Hashimoto disease). According to various sources the occurrence of postoperative hypothyreosis ranges from 60% to 80% of operated cases (2).

As the knowledge of cancer of thyroid gland has considerably increased in recent years, the introduction of aspiration biopsy with a thin needle as a preoperative investigation resulted in creating some standards of surgical procedure on the technique and the extent of strumectomy in particular cases of goitre which are accepted by many endocrinologists and surgeons. Taking into consideration the possibility of recurrence of goitre and the necessity of surgical removal and histopathological examination of every fragment of affected tissue, subtotal strumectomy is performed in many patients. Thyroxine should not be administered until histopathological results from the operated thyroid are obtained. It usually lasts for 2 weeks after the surgery and endocrinologist should be consulted to decide about further treatment. The medical record from the surgical ward should include comprehensive information about the extent of performed surgery. This is necessary to make a preliminary evaluation of the degree of hypothyreosis and determine a necessary primary dose for the thyroxine supplementation. Such management is useful in further treatment if thyroid cancer is diagnosed, because it enables faster scintigraphy of the whole body at the Institute of Oncology in Gliwice, and therefore thyroxine should not be administered for four weeks prior to the surgery. An endocrinologist with wide experience in the treatment of internal diseases should evaluate the general condition of the patient during the first consultation following the surgery, as well as functional efficiency of the circulatory and respiratory system, intensification of symptoms of hypothyreosis and the condition of the organ that underwent strumectomy. When taking medical history and during the physical examination special attention should be paid to body temperature, pain in the neck at rest and while moving the head, the condition of the postoperative scar (swelling, redness), the condition of the skin, mainly on elbows and knees (dry, rough, brown-grey, hue), loss of hair, drowsiness, swollen eyelids in the morning (3, 4).

Depending on the extent of performed strumectomy and patient's condition thyroxine is administered taking into consideration that even in young patients the supplementary dose of hormone should be introduced gradually, under doctor's supervision, every 3–4 weeks. The hormone TSH is an indicator correlating well with the functional condition of thyroid and therefore, the determination of

this hormone is used for the laboratory evaluation of supplementary balance in the patient. There is no need to perform this test immediately after the surgery. Taking into consideration the clinical condition of the patient a normal level of thyroxine should be restored during 2–3 weeks and then the test should be ordered to confirm euthyreosis. The determination of TSH should be performed after fasting overnight and swallowing the prescribed dose of thyroxine on the day of examination and a blood sample should be collected at least 1 hour after swallowing the tablet. If the patient had swallowed the tablet the day before the test, and the test was performed without the tablet, the results should be suitably interpreted.

It is the duty of the doctor in charge of the patient with permanent hypothyreosis to give detailed information about the thyroid dysfunction, explain the need for regular taking thyroid hormone for life, as well as explain the nature of substitution that does not collide with other drugs, surgery, infection and pregnancy.

Patients often ask about side-effects of the treatment after reading the information from the leaflet enclosed to the drug. It is the doctor's task to explain to the patient that he takes the same hormone which is normally produced by the thyroid and that in correct doses there are no side-effects, as the proper level of the hormone is restored (5).

Patients with established supplementary dose should get a medical certificate, (in order to attach it to medical documents), that presents the diagnosis of permanent hypothyreosis, the need for permanent substitution, and presently required dose of the drug. It should be remembered that the established dose of thyroxine may be changed with age, and therefore, the patient under substitution is required to have the endocrinological check-up at least every half a year, and, if there are any indications, TSH should be determined as well.

Thyroid hormones are often administered in the treatment of neutral juvenile goitre or thyroid nodules, making use of the suppressive effect of thyroxine on TSH – the main growth factor in follicular cells of the thyroid.

I would like to describe a dramatic case of a patient from my medical experience that should be a warning to other doctors. A young female, 27, presented at Endocrynology Clinic, six months after the delivery, with severe hypothyreosis and TSH of 104 uIU/ml. She experienced mental and motor torpidity, memory disturbances, massive swelling of the face and lower limbs, bradycardia, rough dry skin and anaemia in the course of menstrual bleeding. It was revealed that 6 years before the presentation a permanent hypothyreosis due to autoimmune disease of the thyroid was diagnosed during her hospitalisation in the medical ward in a large university town. She took the recommended complementary dose of thyroxine regularly, and conceived while in euthyreosis. On her first visit at the gynaecologist in a small town the doctor told her to withdraw thyroxine, explaining that such drug should not be used in pregnancy. The gynaecologist did not collect any information about the indications for the drug, did not ask the patient for a discharge record from the hospital – perhaps she treated the indications for T4 as the treatment for neutral goitre. The patient delivered the baby with symptoms of hypothyreosis.

The management of a patient with hypothyrerosis requires a good doctor-patient relationship. Only proper relationship between a competent endocrynologist and a patient who trusts him will result in taking the hormone regularly and having regular check-ups. Thanks to a great variety of thyroxine preparations on the market, in differentiated doses and of known biological activity, it is possible to administer suitable amounts of hormone with great precision in order to produce/maintain euthyreosis in a patient.

REFERENCES

1. Cooper D. S.: Subclinical hypothyroidism. N. Engl. J. Med., 345, 260, 2001.
2. Górowski T.: Choroby tarczycy. PZWL, Warszawa 1988.
3. Hartwig W.: Endokrynologia praktyczna. PZWL, Warszawa 1989.
4. Pawlikowski M.: Leczenie hormonami i pochodnymi hormonów. PZWL, Warszawa 1988.
5. Pawlikowski M.: Zarys endokrynologii klinicznej. PZWL, Warszawa 1992.

SUMMARY

The aim of the study is to present practical suggestions as to substitutive administration of thyroxine in patients who underwent strumectomy. Hypothyerosis due to strumectomy is an indication for starting treatment with thyroxine. Until thyroid cancer is excluded on the basis of histopathological examinations the patient should not take thyroxine, as there may be a possibility for the need of scinthigraphy of the whole body. Proper management of the patient with hypothyreosis includes informing the patient about the necessity of regular taking the hormone and undergoing regular check-ups.

Substytucyjne stosowanie tyroksyny u pacjentów po strumektomii

Celem pracy jest przedstawienie praktycznych wskazówek substytucyjnego stosowania tyroksyny u pacjentów po przebytej strumektomii. Niedoczynność tarczycy spowodowana strumektomią jest wskazaniem do podjęcia leczenia tyroksyną. Do chwili wykluczenia w badaniu histopatologicznym raka tarczycy, ze względu na ewentualną konieczność scyntygrafii całego ciała, chory nie powinien otrzymywać tyroksyny. Właściwe prowadzenie pacjenta z niedoczynnością tarczycy uwzględnia poinformowanie chorego o konieczności stałego przyjmowania hormonu i wykonania okresowych badań kontrolnych.