

# Information for patients currently treated with T3 (liothyronine)

**Department of Endocrinology**

We are sorry to inform you that T3 (liothyronine) treatment for hypothyroidism (either alone or in combination with T4 [levothyroxine]) is no longer available through the NHS. This is a local policy which applies to prescriptions from GPs and from NHS endocrinology clinics. It is supported by national NHS recommendations. It does not apply to patients treated in the private sector.

## **Is this policy consistent with best practice guidelines and research evidence?**

This policy is in accordance with the position statement 'The diagnosis and management of primary hypothyroidism' which is endorsed by the Royal College of Physicians, the Society for Endocrinology, the British Thyroid Association, the British Thyroid Foundation Patient Support Group, and the Royal College of General Practitioners.

Evidence from a number of carefully conducted research trials does not support the routine use of T4 (levothyroxine) / T3 combination therapy. In clinical practice, a small number of patients do seem to benefit from T4/T3 combination therapy, and research studies are ongoing to look into possible biological explanations for this observation. However at present the doctors who plan local health services feel that there is insufficient evidence of clinical benefit to support its use.

## **Is this a financial decision?**

T3 therapy is much more expensive than levothyroxine (T4) therapy (one T3 tablet is approximately 100 times more expensive than one levothyroxine tablet). The NHS spends approximately £20.8 million on T3 per year. The decision is based on insufficient evidence of clinical and cost-effectiveness of T3 treatment (either alone or in combination with T4 [levothyroxine]). There is also a safe alternative (levothyroxine [T4] treatment).

## What happens when the thyroid is working normally?

Normally the thyroid produces T4 and T3, but about 85% of the hormone released from the thyroid into the blood stream is T4 (thyroxine) and 15% is T3. T3 is the active hormone. Every target organ in the body that requires thyroid hormones can convert T4 to make T3.

## How does levothyroxine (T4) treatment work?

Levothyroxine is the synthetic form of the natural 'T4' hormone (thyroxine). It works in the same way and can be measured in the same blood tests. Levothyroxine provides stable natural thyroid hormone replacement therapy. Target organs can convert levothyroxine to T3.

## What are the risks of T3 treatment?

T3 is much shorter-acting than T4, so levels vary widely during the day, even in patients on multiple daily doses. It is difficult to replicate the natural balance of T4/T3 in the circulation using T4/T3 combination therapy, risking side-effects from slight over-treatment in the long term. These side-effects include atrial fibrillation (an erratic heart beat which increases the risk of stroke) and loss of bone strength (increasing the risk of osteoporosis and fractures). Patients who are trying for a baby should not take T3, as it does not cross the placenta, so it will not support the development of the baby during pregnancy.

## What if I do not feel well on levothyroxine (T4) treatment?

The average dose of thyroxine is 100 – 150 microgrammes per day. Your GP will check your thyroid function tests (blood tests) once you have been on a stable dose of levothyroxine for 6-8 weeks. They will use the results to adjust the dose of levothyroxine if necessary. It is helpful to take your levothyroxine separate to any other tablets or medicines (including vitamin or mineral supplements). Sometimes

levothyroxine is better absorbed if it is taken last thing at night. It can take a few months to feel fully better even when the dose of levothyroxine is correct. Depending on your symptoms, your GP may feel it would be helpful to check other blood tests, to screen for conditions that are more common in patients with hypothyroidism (for example, coeliac disease [gluten sensitivity] or anaemia [caused by vitamin B12 deficiency]).

## Should I take Armour Thyroid?

Armour Thyroid is made from dried pig thyroid. It is an unlicensed product in the UK. It contains excessive amounts of T3 in relation to T4, and is not recommended.

## What will happen next?

We are sending a letter to your GP about this. We will arrange for you to be seen in the endocrine clinic to discuss this and facilitate switching from T3 to levothyroxine. Unfortunately we will not be able to continue to prescribe T3 from the hospital.

## Patient support groups and further information

British Thyroid Foundation [www.btf-thyroid.org](http://www.btf-thyroid.org)

British Thyroid Association [www.british-thyroid-association.org](http://www.british-thyroid-association.org)

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### Disclaimer

The information in this leaflet is for guidance purposes only and is in no way intended to replace professional clinical advice by a qualified practitioner.

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