

Management of Primary Hypothyroidism: Advice on Switching from Liothyronine (T3) to Levothyroxine (T4) in Primary Care.

- Check that the patient has been accurately diagnosed as genuinely hypothyroid (i.e. confirmed as biochemistry in accredited NHS lab). If not, consider stopping treatment and show TSH rise.
- When switching from liothyronine (including liothyronine-containing products) to the equivalent dose of levothyroxine, taking into account any other levothyroxine the patient is also co-prescribed and the patient's most recent thyroid function tests.
- The BNF states that 20–25 micrograms of liothyronine is equivalent to 100 micrograms of levothyroxine.
- Levothyroxine tablets are available in 12.5, 25, 50, 75 and 100 microgram strengths (12.5microgram tablets are considerably more expensive than other levothyroxine tablet strengths available – see below). Prescribe as whole tablets.
- Patients should have repeat TFTs 1-2 months after switching to determine the appropriateness of their new dose.
- If unsure on dose, switch to a standard dose of levothyroxine and then titrate as usual.

Secondary care advice should be obtained for any patients under the care of a specialist endocrinologist before switching.

Background

This document aims to support primary care in reviewing patients prescribed liothyronine. Liothyronine is not routinely recommended for prescribing in Cambridgeshire and Peterborough unless the patient is clinically unable to take levothyroxine, as confirmed by a specialist endocrinologist with supporting biochemistry from an accredited NHS lab.

This is in line with the British Thyroid Association Statement, endorsed by the Association of Clinical Biochemistry, British Thyroid Foundation, Royal College of Physicians and Society for Endocrinology http://www.btf-thyroid.org/images/documents/BTA_Hypothyroidism_Statement.pdf :

- Synthetic L-T4 (*levothyroxine*) remains the treatment of choice in hypothyroidism.
- Levothyroxine should be prescribed generically.
- L-T4/L-T3 combination therapy in patients with hypothyroidism should not be used routinely, as there is insufficient evidence to show that combination therapy is superior to L-T4 monotherapy.
- Where a patient reports having persistent symptoms despite a normal serum TSH, such symptoms should be given due consideration and patients should be thoroughly evaluated for other potentially modifiable conditions. In some cases, a retrospective review of the original diagnosis of hypothyroidism may be necessary. Symptom and lifestyle management support should be provided and further dose adjustments may be required.
- There is no convincing evidence to support routine use of thyroid extracts, L-T3 monotherapy, compounded thyroid hormones, iodine containing preparations, dietary supplementation and

over the counter preparations in the management of hypothyroidism.

Equivalent Doses

The BNF states that 20–25 micrograms of liothyronine is equivalent to 100 micrograms of levothyroxine. The basic ‘rule of thumb’ in converting thyroid doses is that 100 micrograms of levothyroxine is roughly equivalent to 25 micrograms of liothyronine.

When converting to levothyroxine, round up or down as clinically appropriate using whole tablets (12.5, 25, 50, 75 and 100 microgram levothyroxine tablets are available). The BNF advises that the maximum recommended maintenance dose of levothyroxine is 200 micrograms once daily.

Levothyroxine 12.5 microgram tablets are considerably more expensive than other licensed strengths.

Monitoring

Patients should have repeat TFTs 1-2 months after switching to determine the appropriateness of their new dose.

Cost Comparison (November 17)

Formulation and Strength	28 tablets (November 17 Drug Tariff / ePACT data)
Levothyroxine 12.5 microgram tablets	£15.00
Levothyroxine 25 microgram tablets	£1.97
Levothyroxine 50 microgram tablets	£1.23
Levothyroxine 75 microgram tablets	£3.07
Levothyroxine 100 microgram tablets	£1.23
Liothyronine 20 microgram tablets	£258.20
Liothyronine 5 microgram tablets / capsules	Not listed in the Drug Tariff / unlicensed special – price is variable (FP10 cost range during 16/17: £44.71 - £110.41)
Liothyronine 2.5 microgram tablets / capsules	Not listed in the Drug Tariff / unlicensed special – price is variable (FP10 cost range during 16/17: £117.17 - £500.78)

References

1. Drug Tariff November 17 <https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/drug-tariff>
2. British National Formulary. <http://www.bnf.org/bnf/index.htm> [accessed 16.11.17]
3. British Thyroid Association. The diagnosis and management of primary hypothyroidism. A statement made by the British Thyroid Association endorsed by the Association of Clinical Biochemistry, British Thyroid Foundation, Royal College of Physicians and Society for Endocrinology Practitioners. 2015 http://www.btf-thyroid.org/images/documents/BTA_Hypothyroidism_Statement.pdf
4. PrescQIPP Bulletin 121, February 2016. Available at: <https://www.prescqipp.info/liothyronine/category/225-liothyronine> [accessed 16.11.17]