Position Paper – Liothyronine

Recommendations

- Levothyroxine is the NHS thyroid hormone of choice as it is cost-effective, suitable for once daily dosing due to its long half-life and provides stable and physiological quantities of thyroid hormones for patients requiring replacement[1]
- Liothyronine offers poor value for money to the NHS, has limited clinical value and is not appropriate for prescribing in primary care
- Prescribing of thyroid hormones should be in accordance with the British Thyroid Association (BTA) guidance[2]
- Review all patients taking liothyronine (alone or in combination with levothyroxine) for suitability for switching to levothyroxine. All suitable patients to be switched to levothyroxine
- For patients under the care of or initiated by a relevant specialist, refer back for review and continued prescribing of liothyronine by secondary care

Background

Liothyronine features on the DROP (Drugs to Review for Optimised Prescribing) List as an item which offers poor value for money to the NHS and has limited clinical value.

Nationally over £20.8 million was spent on liothyronine over the course of a year (e-PACT May to July 2015). For the financial year 2015-16, Blackpool CCG spent £90K on liothyronine.

Rationale for switching to levothyroxine

Levothyroxine is the NHS thyroid hormone of choice as it is cost-effective, suitable for once daily dosing due to its long half-life and provides stable and physiological quantities of thyroid hormones for patients requiring replacement.[1] Liothyronine is not routinely recommended for prescribing as it has a much shorter half-life and steady-state levels cannot be maintained with once daily dosing.[1]

Levothyroxine (LT-4) is a pro-drug and is converted to liothyronine (LT-3) in the body. The combination of levothyroxine and liothyronine, in both non-psychological and physiological proportions, has not consistently been shown to be more beneficial than levothyroxine alone with respect to cognitive function, social functioning and wellbeing. The variation in hormonal content and large amounts of liothyronine may lead to increased serum concentrations of L-T3 and subsequent thyrotoxic symptoms, such as palpitations and tremor.[1]

Significantly, liothyronine (available as licensed 20 microgram tablets and unlicensed 5 microgram tablets) is considerably more expensive than levothyroxine. As many other liothyronine containing preparations are also unlicensed, the safety and quality of these products cannot be assured (see CCG position statement on the prescribing of unlicensed medications).

The BTA does not recommend the routine prescribing of additional liothyronine in any presently available formulations, as it is inconsistent with normal physiology, has insufficient evidence to show that combination therapy is superior to L-T4 monotherapy and may be harmful.[2] There is no evidence to support the use of L-T3 monotherapy.[2]

However, the BTA does advise that for some patients, who have unambiguously not benefited from L-T4, may benefit from a trial of L-T4/L-T3 combination therapy. The prescribing of liothyronine should be undertaken and supervised by accredited endocrinologists with documentation of agreement after fully informed and understood discussion with the patient, of the uncertain benefits, likely risks of over-replacements and potential adverse consequences and lack of safety data.[2] The prescribing of liothyronine for these patients must be by specialist only and be undertaken and provided by secondary care.

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References

1. UK Medicines Information service (UKMi). What is the rationale for using a combination of levothyroxine and liothyronine (such as Armour® Thyroid) to treat hypothyroidism? November 2011
http://www.medicinesresources.nhs.uk/upload/NHSE_Armour_ Thyroid_56_5final[1].doc

2. Okosiemi, O, Gilbert J, Abraham P et al. Management of primary hypothyroidism: statement by the British Thyroid Association Executive Committee
Clinical Endocrinology 2015; 0: 1-10
http://www.british-thyroid-association.org/news/BTA_Hypothyroidism_Statement. pdf