



Effective Health Care

Treatment of Hypothyroidism

Nomination Summary Document

Results of Topic Selection Process & Next Steps

- The comparative effectiveness of hypothyroid treatments was found to be addressed by a 2011 BMJ Clinical Evidence review and a 2009 systematic review. Given that the existing reviews cover this nomination, no further activity will be undertaken on this topic.
 - Nygaard B. Hypothyroidism (primary). Clin Evid (Online). 2010 Jan 5;2010 PMID: 21726489
 - Ma C, Xie J, Huang X, et al. Thyroxine alone or thyroxine plus triiodothyronine replacement therapy for hypothyroidism. Nuclear Medicine Communications 2009 Aug;30(8):586-93. PMID: 19491714.
- Treatment to different TSH targets is not feasible for a full systematic review due to the limited data available for a review at this time.

Topic Description

Nominator: Individual

Nomination Summary: The nominator questions the effectiveness and potential harms of hypothyroid treatments. Specifically, the nominator questions the comparison of thyroxine (T4) therapy alone or thyroxine plus triiodothyronine (T3) replacement therapy. The nominator also questions the appropriate range of serum thyroid hormone levels to guide treatment.

Staff-Generated PICO

Population(s): Patients with clinical hypothyroidism

Intervention(s): Thyroxine (T4) therapy alone

Comparator(s): Thyroxine plus triiodothyronine (T4/T3) therapy), treatment to different TSH targets

Outcome(s): Serum thyroid hormone levels, symptom severity, quality of life, cognitive function, changes in body composition, cardiac function, and adverse effects of treatment (e.g., decreased bone mass, fracture rate, development of hyperthyroidism, acne, alopecia)

Key Questions from Nominator: None

Considerations

- The topic meets EHC Program appropriateness and importance criteria. (For more information, see [http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/.](http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/))

- This topic has two main areas:
 1. The comparative effectiveness of hypothyroid treatments
 2. Treatment to different TSH targets.

- The topic of the comparative effectiveness of hypothyroid treatments was found to be addressed by a 2011 BMJ Clinical Evidence review by Nygaard titled *Hypothyroidism (primary)* and a 2009 systematic review by Ma and Colleagues titled *Thyroxine alone or thyroxine plus triiodothyronine replacement therapy for hypothyroidism*. These reviews come to the same conclusion as existing guidelines that combination therapy does not offer any improvement in TSH scores but that there is limited evidence for an improvement in some quality of life scores. Overall, existing reviews are reasonably consistent in their findings that monotherapy (T4 alone) is the preferred treatment from a clinical and evidence perspective, although a significant minority of patients prefer combination therapy because it provides more symptom relief from hypothyroidism. Only two additional small studies were identified addressing the comparative effectiveness of combination therapy versus T4 monotherapy. These studies come to the same conclusions as the existing review. Therefore, this topic is addressed by existing reviews and a new systematic review would not uncover new information that would alter current recommendations or clinical practice.

- Very few studies have been conducted on treatment to different TSH targets in hypothyroidism. Therefore, this topic is not feasible for a full systematic review due to the limited data available for a review at this time.