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Critique of proposed 'UK Guidelines for the use of thyroid function tests'

Gordon R B Skinner MD, DSc, FRCOG, FRCPath

Louise Lorne Clinic, 22, Alcester Road, Moseley, Birmingham B13 8BE, UK
Tel/Fax: 00441214498895
Email: gordonskinner@hotmail.co.uk

In October 2005, the Association of Clinical Biochemistry, The British Thyroid Association and British Thyroid Foundation kindly prepared a document entitled "UK Guidelines for the Use of Thyroid Function Tests" followed by revision in July 2006 with proposition of a further review after one year of practice by colleagues who have worked to these Guidelines (1).

Clinical hypothyroidism has a prevalence of approximately 2% and annual incidence of 0.35% in the United Kingdom and the United States with a 10 fold greater prevalence in women (2,3,4,5).

A recurring difficulty - which obtains in many Guidelines - is the 'assumption of the reciprocal'. As an example, the Guidelines under scrutiny correctly suggest that TSH values in excess of 10 bespeak hypothyroidism but leave the unspoken misconception that TSH values below 10 bespeak health (*vide infra*).

It is thus important to secure lodgement of the following counter arguments to a number of the principle tenets of the Guidelines as they relate to hypothyroidism.

Diagnosis

Exclusion on basis of thyroid chemistry

This is the key problem. There is no evidence to hand teaching that free thyroxine or thyroid stimulating hormone levels within 95% reference intervals exclude a diagnosis of hypothyroidism. If the Guideline authors are aware of any evidence relating to this critical issue, it should be presented and further time allowed for analysis and discussion; if there is no such evidence, then this must be unequivocally stated towards redirection of current medical practice.

Misinterpretation of thyroid hormone levels and reference intervals

There is little discussion in the Guidelines concerning possible technical and pharmacological shortfalls in a non critical interpretation of free thyroxine, thyroid stimulating hormone and 95% reference intervals as pivotal criteria in the diagnosis of hypothyroidism; various arguments on these issues have been presented in the following references (6, 7, 8, 9, 10,11).

Management issues

Monitoring replacement by thyroid chemistry

Levels of thyroid replacement or choice of thyroid preparation should be primarily based on clinical consideration rather than thyroid chemistry; indeed, while the revised Guidelines of July 2006 do now acknowledge this precept, the waters are then somewhat muddied by the Guidelines asking additionally for restoration of TSH levels to be within 95% reference intervals and FT4 levels around the upper end of the 95% reference intervals. In my personal experience both propositions - particularly concerning TSH levels - are not necessarily consonant with optimal health and indeed are frequently incompatible with optimal health. This is an important issue where chronic hypothyroid ill health is too often accepted from unfounded anxiety over perceived pathogenicity of raised FT4 and/or low TSH levels (6).

Adverse outcome from abnormal thyroid chemistry has been exaggerated from non cognisance of the clinical status of patients in long-term studies. It is recognised that patients with long term evidence of clinical thyrotoxicity may well develop pathological sequelae but there is no secure evidence that suppressed TSH in clinically euthyroid patients carries such detriment. If there is such evidence, it should be stated; if not, the Guidelines should make unequivocal statement to the contrary. It is highly improbable that continuance of hypothyroidism with its manifest pathological sequelae - including the oft-ignored long term complications of increased cholesterol level and atheromic deposition - is a safe alternative to clinical euthyroidism and optimal health.

Relative efficacy of available thyroid preparations

There is no evidence teaching advantage of thyroxine versus triiodothyronine versus Armour Thyroid excepting observation of practitioners who have used all three preparations over a number of years. It is thus unreasonable that there is repetitive suggestion from a number of colleagues in the field that Armour Thyroid must 'prove its mettle'; it was first at the post by a long way. There is urgent need for a comparative evaluation.

Conclusion

The diagnosis of hypothyroidism and evaluation of replacement dosage levels should not be pivotally dependent on thyroid chemistry but on clinical evaluation of the patient with sensible cognisance of thyroid hormone levels as an adjunct if required in patients where there might be uncertainty on the evidentiality of clinical features. There is no evidence from clinical trial to support the relative therapeutic benefit of any of the three available thyroid preparations in single or combinative use. There is urgent need to subject these unresolved issues to the scrutiny of formal clinical trial.

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