

DOCUMENT 5

Thyroid Replacement in Clinically Hypothyroid Patients who have Free Thyroxine or Thyroid Stimulating Hormone within 95% Reference Intervals; 23.07.07.

There is controversy in the medical profession on the advisability of thyroid replacement in patients whose thyroid chemistry in particular the free thyroxine (FT4) and or thyroid stimulating hormone (TSH) lie inside the laboratory 95% reference intervals. This is a central issue in an ongoing GMC v Skinner Fitness to Practice Hearing.

I thought it would be relevant to establish in part measure what proportion of colleagues practicing endocrinology had ever provided thyroid replacement in these situations (Tables 1, 2 and 3).

A total of 173 respondents replied within 28 days of receiving the questionnaire wherein 56 of the respondents requested anonymity. There were 93% respondents who had at least once provided thyroid replacement to patients with TSH level above the 95% reference intervals with a lesser proportion of 69% for patients with FT4 level below the lower limit of the 95% reference interval and a lower but significant proportion (12%) where both were inside the 95% reference intervals. There was little difference in results between eponymous and anonymous respondents.

These conclusions do not engross information on the precise levels of thyroid hormone within a given reference interval. This matter is often cheerfully ignored by certain colleagues who advance the strange concept that if (for example) a TSH value is within a reference interval then the patient is not hypothyroid irrespective of the level of the hormone within that interval. La Place and his contemporary Gauss – they of probability distribution fame – would be astonished to learn that Gaussian theory is now being applied to the distribution of thyroid hormone levels and then, erroneously, to the frequency of hypothyroidism; they would also be astonished to learn that there is no evidence correlating thyroid hormone values within the 95% reference intervals with the frequency and/or severity of hypothyroidism and that an unproven statistic has been transmuted into a gold standard of diagnosis wherein hypothyroidism cannot apparently exist if thyroid chemistry lies within 95% reference intervals. In the absence of secure correlative evidence, only one situation permits this approach, namely if a condition has been defined *ab initio* via laboratory findings which for example might apply to hypercholesterolaemia or even sub clinical hypothyroidism where the condition has been defined as having a raised TSH level above the 95% reference interval. The 'coincidence' of a 5% incidence of hypothyroidism – and indeed of other 5% disease frequencies similarly derived - requires critical re-examination.

It must be emphasised that the frequency responses recorded in Tables 1, 2 and 3 do not represent usual or current practice of the respondents; there are of course many interpretations from information presented outwith a contextual framework.

There is an urgent case to examine the efficacy of thyroid replacement in patients who have clinical evidence of hypothyroidism with clinical chemistry lying within 95% intervals.

I thank colleagues for their courteous and timely responses to this questionnaire.

Frequency of Responses

1. Eponymous responses

Thyroid replacement given when:	Yes	No	No response
FT4 within 95% reference intervals TSH above 95% reference intervals	107 (91%)	8	2
FT4 below 95% reference intervals TSH within 95% reference intervals	85 (73%)	29	3
FT4 and TSH within 95% reference intervals:	10 (9%)	100	7

2. Anonymous responses

Thyroid replacement given when:	Yes	No	No response
FT4 within 95% reference intervals TSH above 95% reference intervals	54 (96%)	2	0
FT4 below 95% reference intervals TSH within 95% reference intervals	34 (61%)	18	4
FT4 and TSH within 95% reference intervals:	10 (18%)	45	1

3. Total responses

Thyroid replacement given when:	Yes	No	No response
FT4 within 95% reference intervals TSH above 95% reference intervals	161 (93%)	10	2
FT4 below 95% reference intervals TSH within 95% reference intervals	119 (69%)	47	7
FT4 and TSH within 95% reference intervals:	20 (12%)	145	8