Unicef, the Church of England, and the Royal College of Midwives, are calling on this company to change its practices. Can we all be wrong?

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- 1 Fookes GA. Nestlé supports international code. *BMJ* 1993;307:324-5. (31 July.)
- 2 Dillner L. Coffins greet Nestlé shareholders. *BMJ* 1993;306:1563-4. (12 June.)

Functional hypoglycaemia postulated as cause of chronic fatigue syndrome

EDITOR,—In discussing the various causes of the chronic fatigue syndrome P K Thomas fails to mention one syndrome—namely, functional hypoglycaemia. We do not believe that such a syndrome exists, but in the Netherlands it has become a popular diagnosis among “alternative doctors,” who claim that chronic fatigue is caused by inappropriately increased postprandial insulin concentrations with subsequent hypoglycaemia. This disease is linked to a so called allergy to endogenous glucose.

It is clear from this description that there is no scientific basis for this syndrome, and this is confirmed in the literature. Unfortunately, doctors and dietitians who recognise this syndrome have burdened their patients with complicated diets, requiring the elimination of all simple carbohydrates. When we asked an alternative doctor why we never see hypoglycaemia in these patients we were told that we do not measure glucose concentrations at the right moment. The diagnosis should be made after a standard oral glucose tolerance test with measurement of glucose concentrations three and five hours after glucose intake. “Overproduction” of insulin is thus shown by reactive hypoglycaemia.

The use of this non-physiological test to diagnose this syndrome has no scientific basis whatsoever.^{2,3} Nevertheless, tens of thousands of patients are treated for this syndrome in the Netherlands.

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- 1 Thomas PK. The chronic fatigue syndrome: what do we know? *BMJ* 1993;306:1557-8. (12 June.)
- 2 Zelissen PMJ, Erkelens DW. Zin en onzin bij de diagnostiek van spontane hypoglycemie. *Ned Tijdschr Geneesk* 1989;133:1536-8.
- 3 Palardy J, Havrankova J, Lepage R, Matte R, Belanger R, D'Amour P, et al. Blood glucose measurements during symptomatic episodes in patients with suspected postprandial hypoglycemia. *N Engl J Med* 1989;321:1421-5.

Thyroid function in elderly people

Thyrotrophin releasing hormone test is useful

EDITOR,—In the management of patients with raised plasma or serum thyroid stimulating hormone concentration, with no history of thyroid disease, and not taking drugs known to influence thyroid function, Peter Rae and colleagues state that if after four to six weeks thyroid stimulating hormone concentration is <10 mU/l then the measurement of thyroid autoantibodies will help distinguish between those with underlying thyroid disease and those without.¹ This may not on its own be adequate as about 12% of most populations are positive for thyroid autoantibodies.²

The thyrotrophin releasing hormone test can be

a useful dynamic function test to combine with the measurement of autoantibodies in identifying those patients to consider for replacement therapy. The test has been used to identify elderly patients with subclinical thyroid dysfunction that was not recognised by basal thyroid stimulating hormone values alone.³ In another study the test had a positive predictive value of 81%.⁴

We performed thyrotrophin releasing hormone tests on 26 patients who had serum thyroid stimulating hormone concentrations between 4.3 and 10 mU/l on two separate occasions at least three months apart. Sixteen (62%) of them had a hypothyroid response, and the remaining 10 (38%) had a euthyroid response, and there was no correlation with basal concentration of the hormone. We have previously shown that response to the thyrotrophin releasing hormone test is not predicted by thyroid autoantibodies in a group of patients with subclinical hypothyroidism.⁵ A hypothyroid response to thyrotrophin releasing hormone is a useful indication of the need for an early treatment in patients with positive results on thyroid autoantibody screens.

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- 1 Rae P, Farrer J, Beckett G, Toft A. Assessment of thyroid status in the elderly people. *BMJ* 1993;307:177-80. (17 July.)
- 2 Prentice LM, Phillips DW, Sarsero D, Beever K, McLachlan SM, Smith BR. Geographical distribution of subclinical autoimmune thyroid disease in Britain: a study using highly sensitive direct assays for autoantibodies to thyroglobulin and thyroid peroxidase. *Acta Endocrinol* 1990;123:493-8.
- 3 Targum SD, Marshall LE, Magac-Harris K, Martin D. TRH tests in a healthy elderly population. Demonstration of gender difference. *J Am Geriatr Soc* 1989;37:533-6.
- 4 Brown CA, Hennessey JV. Clinical significance of mildly elevated thyrotropin levels with normal thyroxine levels. *South Med J* 1989;82:681-5.
- 5 Mojiminiyi OA, Wilcox AH, Rege VP, Barron JL. Use of the TRH test and thyroid autoantibodies in subclinical hypothyroidism. *Proc ACB National Meeting* 1992:82. (Abstract.)

Take account of iodine supply

EDITOR,—In their article on the assessment of thyroid status in elderly people Peter Rae and colleagues present diagnostic algorithms that seem to be useful in the management of elderly people living in areas that are not deficient in iodine.¹ We believe, however, that a different approach is required in areas that are deficient in iodine (for example, large parts of continental Europe).

Iodine deficiency leads to hyperplasia of the thyroid gland.² This could explain the greater frequency of clinical and subclinical hyperthyroidism compared with hypothyroidism (3.7% and 2.8% versus 1.7% and 2.0%) in screening studies of elderly patients from iodine deficient areas.³ The prevalence of goitre in these studies was about 50%.⁴ Autonomously functioning thyroid tissue was detected by suppressive quantitative technetium scintigraphy in about half of elderly patients with goitre.⁵ The findings suggest that in these areas the probability of a low thyroid stimulating hormone concentration caused by autonomously functioning thyroid tissue but not by non-thyroidal illness of elderly people is greater than that in areas with a good supply of iodine. Even under these circumstances we agree that healthy elderly people without palpable goitre should not be screened for thyroid dysfunction. Nevertheless, we propose general screening of long term patients in geriatric hospitals.

We also agree that an elderly patient with a normal thyroid stimulating hormone concentration should not be investigated further for thyroid dysfunction. In a long term patient in a geriatric hospital who does not have palpable goitre, how-

ever, we would not regard a suppressed thyroid stimulating hormone concentration and normal thyroxine and triiodothyronine concentrations as indicating non-thyroidal illness; ultrasonography and, if necessary, radioisotopic scanning of the thyroid have to be performed to rule out or detect autonomously functioning nodules. In addition, we believe that even in the case of a subnormal but not suppressed thyroid stimulating hormone concentration in elderly patients, autonomously functioning thyroid tissue should be ruled out either by repeated follow up studies of thyroid stimulating hormone or by a thyrotrophin releasing hormone test (we still use this test for this purpose).³ In iodine deficient elderly patients a small amount of autonomously functioning thyroid tissue presenting only as a subnormal thyroid stimulating hormone concentration should not be interpreted as hyperthyroidism. It may, however, have clinical consequences if iodine is given (for example, on angiography, in drugs that contain iodine such as amiodarone, and possibly prophylactically as iodinated salt or milk) since it may provoke clinical hyperthyroidism.⁶

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- 1 Rae P, Farrer J, Becker G, Toft A. Assessment of thyroid status in elderly people. *BMJ* 1993;307:177-80. (17 July.)
- 2 Stübner D, Gärtner R, Greil W, Gropper K, Brabant G, Permanetter W, et al. Hypertrophy and hyperplasia during goitre growth and involution in rats—separate bioeffects of TSH and iodine. *Acta Endocrinol* 1987;116:537-42.
- 3 Szabolcs I, Ploenes C, Bernard W, Herrmann J. Screening of geriatric patients for thyroid dysfunction with thyrotrophin-releasing hormone test, sensitive thyrotropin and free thyroxine estimation. *Horm Metab Res* 1990;22:298-302.
- 4 Hintze G, Windeler J, Baumert J, Stein H, Robberling J. Thyroid volume and goitre prevalence in the elderly as determined by ultrasound and their relationship to laboratory indices. *Acta Endocrinol* 1991;124:12-8.
- 5 Baehre M, Hilgers R, Lindemann C, Emrich D. Thyroid autonomy; sensitive detection in vivo and estimation of its functional relevance using quantified high-resolution scintigraphy. *Acta Endocrinol* 1988;117:145-53.
- 6 Fradkin JE, Wolff J. Iodine-induced thyrotoxicosis. *Medicine* 1983;62:1-20.

Sample sizes in audit

EDITOR,—L Peter seems to anticipate the wish of every investigator by supplying a sample size chart for audit without asking any of the questions that statisticians usually ask—such as, what is the expected prevalence of a positive response?¹ An odd feature of the chart given is the unexplained kink in it. I wish to present a revised and expanded chart and to explain some limitations of using it.

When an investigator is sampling a nominal variable (such as whether or not a test has been carried out) he or she will obtain x positive responses out of n , and the ratio $p = x/n$ estimates a population prevalence π . Peter gives the example of a group of asthmatic patients registered with a practice and wishes to see what proportion have had their peak flow recorded in the past 12 months. The usual formula for a confidence interval has to be modified if the population from which the sample is taken is finite.² Peter's chart gives sample sizes so as to be able to estimate the 95% confidence interval to be five percentage points either side of the estimate.

The figure shows the revised sample sizes for $\pi = 0.1$, 0.25, and 0.5. Suppose that there were 400 patients with asthma in a practice and the proportion positive in the sample was expected to be $\pi = 0.5$. Then the required sample size, from the figure, is just under 200—that is, only about half of