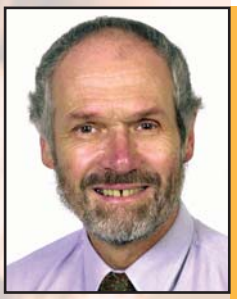
Chasing tests

Patrick Phillips, MBBS, MA (Oxon), FRACP, MRACMA, GradDipHealthEcon, is Senior Director of Endocrinology, The Queen Elizabeth Hospital, Woodville, South Australia.



Case history

'I am still tired all the time, I've got no energy, I can't lose weight and people are saying I'm losing my memory. Perhaps my thyroid is under active'.

Joan is 43 years of age, a secondary school teacher and the mother of three children. This is the second time she's seen you for symptoms that have bothered her for the past 6 months or so. She's been under a bit of stress at school because of under staffing but doesn't seem depressed. There are no striking features of hypothyroidism - perhaps her skin is a bit thick, her voice a bit hoarse (but she is a smoker) and her hair a bit coarse. However, she is overweight (weight 62 kg, height 151 cm*) and she's gained 3 kg since her symptoms began. Joan is recovering from a bad episode of bronchitis that kept her in bed for a week, but the antibiotics seem to have fixed this as she is no longer coughing up purulent sputum (she's still smoking though!).

Joan has no family history of thyroid problems and her only personal history is obstetric (three vaginal deliveries) and the occasional 'bronchitis'. On examination you can't feel her thyroid, pulse is 65 and regular and her chest has still got a few crackles and wheezes but there is no other abnormality. You suspect Joan's problems are because of stress at work and home, but you agree to check her thyroid function.

Thyroid function tests (TFT) show:	Free T4	12 pmol/L (range (12-24)
	TSH	5.2 mu/L (range 0.5-4.5)

Joan is not surprised since 'I knew something was wrong'. You check her thyroid ultrasound and arrange a radionuclide scan as recommended by the ultrasound report. The ultrasound shows several small cysts and one larger one in the right lobe (approximately 0.5 cm in diameter). The thyroid scan shows irregular uptake.

Joan is worried she might have cancer so you arrange for her to see a surgeon. The first fine needle aspiration gives an inadequate sample and repeat biopsy cytology is inconclusive. The surgeon can't be sure what the nodule is. He doesn't think it's malignant but explains that Joan would need surgery to make absolutely sure. Joan is still worried as a friend recently died from breast cancer. She asks whether she should get a second opinion before surgery. The whole situation is becoming very complicated and you wondered whether you should have ordered the TFT in the first place.

* Body mass index (BMI)=weight (kg)÷height^2(metre^2)=62 ÷1.512=27.2. Healthy BMI 20–25, over weight 25–30, obese >30 kg/m^2

Question 1

Should you have ordered the test?

Question 2

If you did, how should you have responded to the borderline abnormality?

Question 3

If you ordered a repeat test, how would you interpret the results?

Question 4

If the second test confirmed sub-clinical hypothyroidism (FT4 in the reference range, TSH increased), how would you respond?

Question 5

If Joan requested thyroxine therapy, how would you respond?

FEEDBACK

Answer 1

If you could go back in time, you probably would not have ordered the TFTs in the first place. Thyroid function tests are often abnormal during and after significant illness (sick euthyroid syndrome). It is best not to test if a patient has a significant illness or is recovering from one. Wait for several weeks after recovery before testing. Even then, Joan is not in a high risk category where case finding is appropriate.[1] (She's young, has no past or family history of thyroid problems and no strong clinical suggestion of hypothyroidism).

Answer 2

If you had started this scenario by testing, you should have confirmed the abnormality. After all it was marginal and, in retrospect, you should have waited several weeks before testing.

Instead of waiting and repeating the test you did an unnecessary test (the ultrasound) and got unnecessary information that you felt obliged to follow up. That is what really started this goose chase. Remember, investigations should only be done if they are expected to provide clinically useful information. The question to be answered was: 'Is Joan's thyroid function normal?' Not: 'Does she have thyroid nodules?'

Answer 3

If the repeat TFT were normal, you would strongly reassure Joan that her thyroid is normal and the transient test abnormality was caused by her bronchitis. If the repeat test confirmed the abnormality, you would explain the result was marginal, that it did not mean her symptoms were caused by thyroid hormone deficiency, and that further follow up was required (see below).

Answer 4

If the abnormality remained marginal, it would be worth checking again in a month or so. Some would check for thyroid antibodies, since a positive test might confirm autoimmune thyroid disease. Remember though, that thyroid antibodies may be positive in patients who have and will continue to have normal thyroid function. You may find yourself in another cycle of testing if Joan now becomes concerned that she might have other autoimmune diseases!

Answer 5

Joan's symptoms are nonspecific, likely to be caused by stress and unlikely to be improved by any thyroid supplements. After all, thyroxine replacement therapy requires her to take a pill every day for the rest of her life, see you for prescriptions and tests (which she will have to pay for) and may be associated with long term ill effects if excessive doses are taken. If you were unable to convince her, you might start Joan on a low dose of thyroxine (eg. 50 µg alternate days), check her thyroid antibodies (since a strongly positive test might predict more rapid progression) and monitor thyroid function to make sure the TSH returns and remains in the reference range. Explain to Joan that she should not take iron or calcium supplements with her dose of thyroxine since these might affect absorption (as might a bile acid resin if she were taking this).

Conflict of interest: none declared.

Reference

1. Phillips P. Thyroid case finding. Curr Ther 2000/2001; 21–25.

AFP

Correspondence
Email: patrick.phillips@nwahs.sa.gov.au