policies in the United States. Hopefully, the new British Paediatric Association and Joint Committee on Vaccination and Immunisation (BPA/JCVI) Liaison Group, chaired by Sir John Badenoch, which first met in July 1985, will achieve this authority.

There is little evidence on which to base policies about the immunisation of preterm babies. Indeed, immunisation of term infants is started at 3 months largely on empirical grounds. Immunisation at or soon after birth is unsatisfactory, probably because of interference by maternal antibodies.[7,8] Antibody production improves with age, but protection against pertussis is required before 6 months as it is infants under this age who are most at risk.

Preterm infants will receive less maternal antibody than term infants, so there may be less interference with endogenous antibody production. Neonatal antibody production is thought to depend more on exposure to antigen than on maturity, as preterm infants immunised on their expected date of birth produce higher titres of antibody than term infants immunised at birth.[9] Studies suggest that preterm babies will produce antibodies after the second immunisation if immunisation is started two months postnatally.[5] The problem with assessing the response to immunisation against pertussis is that none of the antibodies measured against various pertussis antigens has been correlated with protection, and clinical studies are needed.

In the absence of such studies our policy in Oxford is to immunise preterm babies from 3 months postnatally. This policy is in line with the Red Book recommendations and also with the views of the BPA/JCVI liaison group; we recognise that it is based on limited evidence.—DAVID ISAACS

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Lesson of the Week

Acute adrenal crisis precipitated by thyroxine

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It is well recognised that in patients with pituitary insufficiency thyroid hormone replacement without concomitant adrenal steroid replacement may precipitate an acute adrenal crisis.[1] It is less widely appreciated that similar problems may arise during treatment of primary myxoedema if the patient also has unrecognised or subclinical adrenocortical disease. We report on two patients with primary hypothyroidism in whom thyroxine replacement precipitated an acute addisonian crisis.

An unfavourable response to treatment with thyroxine in cases of unequivocal hypothyroidism may reflect the coexistence of another, underlying condition

Case reports

CASE 1

A 47 year old woman had presented elsewhere three years previously with a history of lethargy. No clinical or biochemical abnormality had been detected. Her symptoms persisted, and two years later a low serum thyroxine concentration and a raised serum thyroid stimulating hormone concentration were recorded. Plasma urea and electrolyte concentrations were normal. She was prescribed thyroxine 50 μg daily, increasing to 100 μg after two weeks, but felt ill and dizzy, lost weight, and stopped taking the thyroxine, attributing her symptoms to it. Over the next few months she was seen by several doctors; low serum thyroxine and raised serum thyroid stimulating hormone concentrations were found each time, and she was advised to resume taking thyroxine. Initially she took it only intermittently because it made her feel unwell within a few days, but eventually, because of repeated medical persuasion, she took it continuously for two months. During this period she became progressively more unwell, lost 10 kg in weight, and was confined to bed, unable to cope with daily activities; menstruation, however, continued. She then stopped taking thyroxine and was referred to this hospital.

On examination she was thin and pale; there was no pigmentation of the cheek or skin. Secondary sexual characteristics were well preserved. Her blood pressure was 110/70 mm Hg both recumbent and standing. Systemic examination did not elicit any abnormality. Investigation showed: plasma urea concentration 8 mmol/l (48 mg/100 ml) (normal range 4-7 mmol/l; 24-42 mg/100 ml), sodium 137 mmol(mEq)/l (138-145 mmol/l), potassium 4·4 mmol(mEq)/l (3·6-4·8 mmol/l), and glucose 5·1 mmol/l (92 mg/100 ml). Blood was taken for estimation of serum concentrations of thyroxine and thyroid stimulating hormone, and an adrenal stimulation test was performed using tetracosactrin 0·25 mg intramuscularly.

During the next two weeks she felt increasingly unwell and restarted taking thyroxine 100 μg daily of her own accord. Two days later she was admitted to hospital as an emergency. Her pulse rate was 100 beats/min and her blood pressure 90/60 mm Hg. Plasma urea concentration had increased to 10·5 mmol/l (63 mg/100 ml) and potassium to 5·1 mmol/l while sodium

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had fallen to 131 mmol/l. Hypoadrenalism was diagnosed. Hydrocortisone was given intravenously, with prompt resolution of her symptoms, hypotension, and biochemical abnormalities. Results of investigations showed a serum free thyroxine concentration of 9·5 pmol/l (0·7 ng/100 ml) (normal range 8·8-23 pmol/l; 0·7-1·8 ng/100 ml) and a thyroid stimulating hormone concentration of 30 mU/l (normal <6 mU/l). Cortisol was undetectable in the serum and did not rise after an injection of tetracosactrin. Thyroid microsomal antibodies were positive (1/6 500 000) and adrenal cortical antibodies were present, but gastric parietal cell antibodies were absent.

She remained well and returned to work taking hydrocortisone and thyroxine replacement.

CASE 2

A 24 year old man presented with lassitude, intolerance to cold, and weight loss of 6 kg over six months. On examination he was pale but did not have pigmentation of the skin or mucosa. His pulse rate was 80 beats/min and blood pressure 90/60 mm Hg. Serum biochemical values were: plasma urea concentration 9·0 mmol/l (54 mg/100 ml), sodium 133 mmol/l, potassium 4·8 mmol/l, free thyroxine 2·7 nmol/l (210 μg/100 ml), and thyroid stimulating hormone 59 U/l. Thyroxine 0·1 mg daily was started, but within three weeks he began to feel dizzy, especially on standing. He was admitted to hospital as an emergency after a syncopal attack. His heart rate was 100 beats/min and blood pressure 60/40 mm Hg. Plasma biochemical values on admission were: urea 21·1 mmol/l (127 mg/100 ml), sodium 122 mmol/l, and potassium 5·6 mmol/l. Cortisol was undetectable in the serum and did not rise after an injection of tetracosactrin. Thyroid microsomal antibodies (1/102 400), adrenal cortex antibodies, and gastric parietal cell antibodies were positive; islet cell and pituitary antibodies were negative.

He was given hydrocortisone intravenously, which resulted in prompt reversal of his symptoms and biochemical abnormalities. He remained well taking hydrocortisone and thyroxine replacement.

Discussion

Autoimmune thyroid disease is a common disorder, but concomitant adrenal failure is not, though the two may occur together in multiple endocrine autoimmune disease.[2,3] In retrospect it seems that our first patient had subclinical adrenal insufficiency when thyroxine was initially prescribed, which became clinically manifest when the thyroxine was taken. Continuation of thyroxine led eventually to a classical adrenal crisis with hypotension, hyponatraemia, and hyperkalaemia. Our second patient had clinical features of adrenal insufficiency as well as marginal hyponatraemia, but these were not recognised. Thyroxine replacement precipitated a crisis that could have proved fatal.

The response of cortisol to stress and to adrenocorticotrophic hormone remains normal in patients with hypothyroidism,[4] but their urinary excretion of cortisol is low, indicating a reduced rate of secretion; this is probably a physiological response to a lower metabolic rate.[5] The increase in metabolic rate after administration of thyroxine presumably necessitates increased secretion of adrenal steroid, without which the patient develops adrenocortical failure.

Thyroxine replacement is rarely associated with problems except in elderly patients with pre-existing heart disease.[6] Thus an unfavourable response to thyroxine in patients with unequivocal hypothyroidism may reflect the coexistence of some other, underlying condition. Adrenal insufficiency should be suspected in patients who develop symptoms of lassitude, malaise, weight loss, and hypotension. Prompt diagnosis and replacement of corticosteroids will prevent the development of a potentially fatal acute adrenal crisis.

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A 65 year old man who had a wartime head wound that resulted in shrapnel lodging in his lateral geniculate nucleus and left homonymous hemianopia has been having short (one to three minute) episodes accompanied by a loss of power in the right hand. What might be the cause of these episodes and what treatment is advised?

The episodes are likely to be either seizures or transient ischaemic attacks (which are difficult to differentiate clinically). Transient ischaemic attacks are defined as acute disturbances of focal neurological function of vascular origin lasting less than 24 hours. A useful diagnostic rule of thumb is to ask yourself whether, if the symptoms had persisted rather than resolved, you would have diagnosed a stroke. If the answer is yes, as I think would be the case here, the episodes may be regarded as transient ischaemic attacks. Unfortunately, clinical medicine is not an exact subject and this diagnosis will be wrong in 1-5% of cases, the correct diagnosis being that of a focal seizure. This has led some to suggest that all patients suspected of having transient ischaemic attacks should have a computed tomography scan,[1] a view with which I do not agree as it is totally impractical. Nevertheless, in this patient, who has suffered a penetrating head injury, the risk of epilepsy is quite high and it would be wise to arrange for an EEG and computed tomography scan to be performed. If either of these investigations support a diagnosis of epilepsy then anticonvulsant treatment should be started and the patient should be given the usual advice regarding driving, etc. If these investigations are unhelpful I would favour a diagnosis of transient ischaemic attacks. The management of these varies considerably depending as much on personal inclination as on facts. The major difficulty is that controlled studies have failed to provide definite evidence that antiplatelet drugs, anticoagulants, or different forms of vascular surgery appreciably reduce the risk of stroke in patients who have suffered transient ischaemic attacks. Accordingly, in the man described I would treat any risk factors such as hypertension and until the results of the United Kingdom transient ischaemic attack aspirin study are available I would give him 300 mg of soluble aspirin daily.—N E F CARTLIDGE, consultant neurologist and senior lecturer in neurology, Newcastle upon Tyne.

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What treatment or care is advised for a woman with an atonic bladder resulting from demyelating disease?

An atonic, acontractile bladder is relatively uncommon in women with multiple sclerosis. Irritative bladder symptoms such as frequency, urgency, or urge incontinence are five times more common. If voiding of an acontractile bladder can be achieved by abdominal straining treatment is only indicated for secondary complications. Thus if there is no active infection and the bladder pressure is low a large residual urine is acceptable. When treatment is required, intermittent self catheterisation is the method of choice. Irritative symptoms may be helped at every stage by quite low doses of probanthine, dicyclomine, or imipramine, but oxybutynin may be necessary in severe spasticity. Severely disabled patients may require an indwelling urethral catheter despite the risks of recurrent infection, formation of stones, or damage to the urethra. A small catheter with a small balloon should be used to reduce the risks to a minimum. Chronic leakage around the catheter or detrusor hyper-reflexia may respond to phenol injection of the pelvic nerve plexus behind the bladder base. The most practical alternative to a permanent urethral catheter is a suprapubic catheter with formal closure of the urethra. Urinary diversion into an ileal conduit requires emptying and manipulation by the patient who may lose finger control as the disease progresses. Spinal stimulation through epidural electrodes has not as yet realised its potential.—M E WATSON, consultant urologist, Preston.

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