clinical challenge

Questions for this month's clinical challenge are based on articles in this issue. The style and scope of questions is in keeping with the multiple choice questions of the RACGP Fellowship exam. The quiz is endorsed by the RACGP Quality Improvement and Continuing Professional Development Program and has been allocated 4 Category 2 points per issue. Answers to this clinical challenge are available immediately following successful completion online at www.gplearning.com.au. Clinical challenge quizzes may be completed at any time throughout the 2011–13 triennium, therefore the previous month's answers are not published.

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Single completion items

CPD

DIRECTIONS Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the most appropriate statement as your answer.

Case 1
Anna Beluse

Anna, 33 years of age, is a new patient in your practice. Anna reports that she has suffered from cold intolerance, heavy menses and mild depression for a year. She shows you several investigation results showing normal TSH and T4 results, but positive antithyroid peroxidise antibodies. Examination findings are normal.

Question 1

Anna asks your opinion about commencing levothyroxine, or bioidentical thyroid hormones to alleviate her symptoms. Which of the following statements is best supported by the current evidence:

A. Anna can commence very low dose levothyroxine, as she suffers from subacute hypothyroidism
B. Anna can commence bioidentical thyroid hormones, as they offer a gentler form of thyroid hormone replacement
C. Anna needs further investigation such as hypothalamic pituitary adrenal axis function tests and thyroid imaging
D. Anna is euthyroid and should avoid any supplementation, but have annual thyroid function testing
E. Anna can commence iodine supplementation, as the positive antithyroid antibody result indicates she suffers from autoimmune thyroiditis.

Question 2

Anna returns in 6 months delighted to be in the first few weeks of her third pregnancy, but concerned about persistent cold intolerance. You order a TSH, which returns as TSH 2.3 (normal first trimester pregnancy range 0.1–2.5 mIU/L). Which of the following recommendations is best supported by the current evidence:

A. Anna can commence levothyroxine supplementation as she has a known history of hypothyroidism
B. Anna can be referred to an endocrinologist to manage her TSH levels during pregnancy
C. Anna should take iodine supplementation at 150 µg each day
D. Anna should have regular monitoring of thyroid functions tests throughout her pregnancy
E. Anna should not commence iodine supplementation as she is at risk of developing hyperthyroidism.

Question 3

Some time later, Anna and her healthy baby daughter present for her 6 week check. Anna reports continued lack of energy and complains of a lump in her neck. Examination reveals an enlarged painless thyroid. Thyroid function tests are as follows:
•TSH is 12 (normal range 0.30–5.00 mIU/L)
•T4 is 2 (normal range 11–23 pmol/L)
•T3 is 3 (normal range 3.5–6.7 pmol/L)
•antithyroid peroxidise antibody positive
What is the most likely diagnosis:

A. post viral subacute thyroiditis resulting in hyperthyroidism
B. Hashimoto thyroiditis resulting in hyperthyroidism
C. iodine induced hypothyroidism
D. Hashimoto thyroiditis resulting in hypothyroidism
E. thyroid hormone resistance syndrome resulting in hypothyroidism.

Question 4

How would you manage this condition:

A. paracetamol for comfort; this is a transient condition
B. levothyroxine daily at 1.6 µg/kg, titrated til TSH is normalised
C. levothyroxine daily at 1.6 µg/kg, titrated til symptoms resolve
D. referral to an endocrinologist for radioablation of thyroid gland
E. triiodothyroxine daily; levothyroxine is contraindicated while breastfeeding.

Case 2
Mathilde Peeters

Mathilde, 28 years of age, presents with 1 month of unintentional weight loss, fatigue and palpitations. Examination reveals a diffuse goitre and hyper-reflexia. ECG demonstrates sinus tachycardia.

Question 5

The most likely diagnosis is:

A. hyperthyroidism from Graves disease
B. hyperthyroidism from toxic adenoma
C. accidental exogenous thyroid hormone ingestion
D. hyperthyroidism due to painless sporadic thyroiditis
E. secondary hyperthyroidism due to pituitary adenoma.

Question 6

Mathilde returns with the following results:
•TSH is <0.01 (normal range 0.30–5.00 mIU/L)
•T4 is 38 (normal range 11–23 pmol/L)
•T3 is 5 (normal range 3.5–6.7 pmol/L)
•TSH receptor antibodies present
What further tests are needed for diagnosis:

A. Mathilde needs a radionuclide scan confirm a toxic thyroid nodule

B. nil: Mathilde is euthyroid with incidental Graves disease
C. Mathilde needs a radionuclide scan to screen for thyroid cancer
D. Mathilde needs an ultrasound scan to confirm an autoimmune disorder
E. nil: Mathilde has hyperthyroidism from Graves disease.

Question 7

You elect to commence carbimazole as the next step in Mathilde's management. What important adverse events will you discuss with her:

A. Mathilde is at risk of agranulocytosis and should have regular neutrophil counts to screen for this complication
B. Mathilde has a 0.1% risk of developing severe hepatocellular injury
C. Mathilde should suspend carbimazole if she develops mouth ulcers, fevers and other symptoms suggestive of infection and seek an urgent FBE
D. Mathilde should undergo repeat TSH testing 4 weeks from initiation of therapy as a low serum TSH indicates inadequate dosing of carbimazole
E. Mathilde has a 5–20% risk of developing hypothyroidism while on treatment with carbimazole.

Question 8

One month later, Mathilde presents with right upper quadrant pain and you diagnose cholestatic hepatitis, which resolves fully on cessation of carbimazole. She asks you if she is able to consider pregnancy in the next few months. Which of the following is the most appropriate treatment for Mathilde:

A. Mathilde should recommence carbimazole at a lower dose
B. Mathilde should commence propylthiouracil under endocrinologist supervision
C. radioactive iodine is recommended for Mathilde
D. a beta-blocker provides adequate management for Mathilde
E. Mathilde should be referred for thyroidectomy.

Case 3
Tsheri Dendup

Tsheri, 74 years of age, is a Bhutanese Buddhist monk who has immigrated to Australia. Tsheri states that he has developed recent difficulty swallowing and a dry cough. Examination reveals enlargement of the right lobe of the thyroid gland that Tsheri reports has been present for some years. He is otherwise well.

Question 9

Which of the following investigations will provide the best confirmation of diagnosis of Tsheri's symptoms:

A. CT scan of the neck without contrast media
B. CT scan of the neck with contrast media
C. TSH followed by radioisotope thyroid scan
D. chest X-ray
E. swallowing assessment by speech pathologist.

Question 10

Further investigations reveal that Tsheri is euthyroid with mild tracheal compression and several nodules in a diffusely enlarged right thyroid lobe. Which of the following is an indication for biopsy:

A. any solid nodule
B. any cystic nodule
C. any mixed (solid-cystic) nodule
D. any nodule with microcalcification
E. any abnormal cervical lymph node.

Question 11

What is the most likely aetiology of Tsheri's goitre:

A. slow-growing thyroid cancer
B. acute iodine deficiency in Australia
C. prolonged iodine deficiency
D. Graves disease
E. Hashimoto thyroiditis.

Question 12

Tsheri does not meet any criteria that necessitate biopsy. He asks you how best he can manage his symptoms. You advise as his next step:

A. iodine supplementation via kelp and seaweed
B. radioactive iodine therapy
C. commence thionamides
D. soft foods and cough lozenges
E. total thyroidectomy.

Case 4
Jessica Lynch

Jessica, 24 years of age, suffers from hypothyroidism due to Hashimoto thyroiditis and has been prescribed 50 µg of thyroxine daily. She presents for pre-pregnancy counselling. Jessica eats a healthy diet, including fish three times a week, iodine-supplemented bread and eggs.

Question 13

Which of the following is NOT a high risk attribute for thyroid dysfunction in pregnancy:

A. prior head irradiation
B. type 1 diabetes
C. previous preterm deliveries
D. morbid obesity
E. family history of infertility.

Question 14

Will you recommend iodine supplementation to Jessica today:

A. yes: Jessica should take an iodine supplement of 150 µg/day
B. no: Jessica will obtain all she needs from her iodine-rich diet
C. yes: Jessica should increase iodine-rich foods such as kelp tablets
D. no: iodine supplementation will interfere with Jessica's thyroxine
E. no: Jessica can commence iodine supplements of 150 µg/day once pregnancy is confirmed.

Question 15

Jessica returns in 3 months with a positive home pregnancy test. Which of the following would you recommend:

A. increase thyroxine dose by 30% after pregnancy is confirmed via ultrasound scan
B. maintain thyroxine dose at 50 µg/day and check TSH and free T4 in 4 weeks
C. increase thyroxine dose by 30% immediately
D. titrate thyroxine dose to symptoms of hypothyroidism
E. loading dose of thyroxine for 3 days followed by a return to 50 µg/day.

Question 16

As per current guidelines, how often should thyroid function be performed in pregnant women who have no history of thyroid disease:

A. TSH levels are performed as a screening requirement during the first trimester only
B. TSH, free T4 and T3 levels are performed as a screening requirement during the first trimester only
C. TSH levels are performed every 4 weeks during the first half of pregnancy and once between 26 to 32 weeks gestation
D. TSH levels are performed upon presentation with overt hyperthyroidism or recurrent miscarriage
E. thyroid antibody screening is routine in antenatal screening.