JOURNAL-BASED LEARNING EXERCISES

Each article's contents should be read, researched and understood, and you should then come to a decision on each question. The pass mark is 17 out of 20 questions answered correctly. JBL exercises may be completed at any time until the published deadline date. Please select your choice of correct answers and complete the exercises online at: **www.ibms.org/cpd/jbl**

DEADLINE WEDNESDAY 3 OCTOBER 2018

Idiopathic inflammatory myopathies – a guide to subtypes, diagnostic approach and treatment. Oldroyd A, Lilleker J, Chinoy H. *Clin Med (Lond)* 2017; **17** (4): 322–8. Assessment No: 070518

01	A 9–19% frequency of anti-SSA autoantibodies has been reported in adult PM/DM overlap cases, compared with 14–25% in IIM-non-overlap cases.
02	Immune-mediated necrotising myopathy (IMNM), a rare but severe IIM subtype, is characterised by muscle necrosis and regeneration resulting in proximal muscle weakness.
03	IMNM is also associated with presence of the anti-signal recognition particle autoantibody.
04	Coexisting IIM and mixed CTD is associated with positivity for anti-U1-snRNP autoantibodies, which confers a poor response to steroid treatment and increases prevalence of myositis.
05	For individuals with moderate disease severity, oral prednisolone at a dose of 5–10 mg/kg/day is recommended.
06	Testing for myositis-specific autoantibodies (MSAs) and myositis-associated autoantibodies (MAAs) can further identify clinical subtype, inform the requirement for further investigations and predict treatment response.
07	The anti-PM/Scl autoantibody occurs most commonly in patients who have PM with overlapping sclerodermatous features.
08	Identification of MSA/MAAs can inform diagnosis and risk of secondary organ involvement and cancer development.
09	Dermatomyositis (DM) can be distinguished from PM by its typical cutaneous features, which include Gottron's papules, Gottron's sign, heliotrope rash, V-sign rash, mechanic's hands, shawl sign rash and erythroderma.
10	Patients positive for the anti-Ku autoantibody are more likely to suffer Raynaud's phenomenon, ILD, arthralgia and myositis.
11	Although a raised CK is sensitive for a diagnosis of an IIM, there are many other causes of a raised CK.
12	Features particular to juvenile DM include cutaneous ulcerations, calcinosis cutis and vasculopathy.
13	Gottron's sign consists of red, scaly papules that occur over the dorsal aspect of the metacarpophalangeal, proximal and distal interphalangeal joints, whereas Gottron's papules are the same red, scaly papular rash occurring elsewhere on the body.
14	25% of anti-synthetase antibodies are Jo-1.
15	The statin-associated form of IMNM is associated with autoantibodies directed against HMGCR and characteristically improves following withdrawal of the statin.
16	The anti-synthetase syndrome is a particularly severe IIM subtype associated with myositis, ILD and inflammatory symmetrical polyarthritis of the small joints of the hands and feet.
17	TIF1 is seen in 3–13% of adult PM/DM with a strong association with cancer.
18	Fever, Raynaud's phenomenon and mechanic's hands are also characteristic of the anti-synthetase syndrome.
19	Treatment with tacrolimus, cyclosphosphamide, rituximab, tocilizumab or intravenous immunoglobulin can also be considered under specialist care for more resistant cases.
20	The risk of cancer in the IIMs is between two and seven times higher than in the general population.

Characterisation of the scope and magnitude of biotin interference in susceptible Roche Elecsys competitive and sandwich immunoassays. Trambas C, Lu Z, Yen T, Sikaris K. *Ann Clin Biochem* 2018; **55** (2): 205–15. Assessment No: 070318

01	The binding between biotin and streptavidin is very strong.
02	High-dose biotin therapy is rarely used and is likely to become less common in the future.
03	Generally, sandwich immunoassays will give lower results when samples contain high levels of biotin.
04	The data in the paper suggest the biotin interference in sandwich immunoassays is independent of analyte concentration.
05	Prolactin levels in samples containing 0.5 mg/L biotin are around 30% of those without biotin spiking.
06	A normal female testosterone level would be increased to that associated with PCOS with biotin levels of 500 µg/L.
07	Biotin metabolites bind to streptavidin with equal affinity to biotin.
08	To assist in the interpretation of these findings, studies of biotin pharmacokinetics are warranted.
09	Biotin therapy or use will only be an issue in a clearly defined group of patients.
10	Renal insufficiency is likely to exacerbate the effects of biotin therapy.
11	It may take about a week for measured anti-TSH receptor antibody levels to return to the true value.
12	This study would be almost impossible to conduct in samples naturally containing high levels of biotin.
13	*In vivo* indicates experiments that take place in a reaction vessel.
14	The effect on TSH and free T4 does not mimic any common clinical condition.
15	Low-dose biotin supplements are unlikely to mask pregnancy assessed using serum β-hCG measurements.
16	Normal plasma biotin levels are around 0.5 µg/L.
17	This issue only concerns Roche platform users.
18	This effect is unlikely to cause any issues with the recommendations for lower troponin levels currently being introduced as an early screen for MI.
19	To date, no serious clinical issues have been reported due to this interference.
20	The effect on PSA is likely to remain clinically insignificant.

REFLECTIVE LEARNING

01	Review the myositis-specific antibodies tested for in your laboratory. How do you make sure you consider those autoantibody profiles that are not tested in your laboratory?
02	Critically appraise the differential diagnosis of idiopathic inflammatory myopathies.

01	Outline a strategy for dealing with this issue in your laboratory and hospital. Would this make any difference if you were serving a regional neurology centre?
02	What other commonly available nutritional supplements and herbal medications can affect endogenous metabolite and therapeutic drug levels?