

Letters to the editor

OVERVIEW

Please submit letters for the editor's consideration within three weeks of receipt of *Clinical Medicine*. Letters should ideally be limited to 350 words, and sent by email to: clinicalmedicine@rcplondon.ac.uk

Vitamin B₁₂ deficiency – A 21st century perspective

Editor – I read with interest 'Vitamin B₁₂ deficiency – A 21st century perspective' (Clin Med 2015;15:145–50). I would like to make some comments.

First, the authors never mentioned the possibility of spuriously normal or elevated cobalamin level in pernicious anaemia (PA), a recognised phenomenon, attributable to the circulating intrinsic factor antibodies (IFA) interfering with the competitive-binding luminescence cobalamin assays.^{1–3} This can lead to serious consequences such as delayed PA diagnosis or even misdiagnosis such as myelodysplasia.⁴ In this scenario, serum methylmalonic acid (MMA) and fasting plasma homocysteine levels can be helpful in the context of right clinical setting.

Second, the sensitivity of IFA in PA is 50–70% and therefore 30–50% of PA cases can be missed if IFA serology is solely used. In this situation, the fasting serum gastrin level and gastric biopsy could be helpful in establishing PA diagnosis (gastrin level will be high and biopsy could reveal atrophic gastritis in the body and fundus).^{5–6}

Third, false-positive IFA can be seen if IFA sampling is performed after cobalamin injections and therefore it is extremely important to perform IFA sampling before starting cobalamin injections.⁷

Fourth, some patients may have high MMA levels due to concomitant renal failure or bacterial overgrowth.⁵ They may just present with macrocytic anaemia, hypersegmented neutrophils and macroovalocytes, but with normal vitamin B₁₂ levels. Those patients might benefit from a therapeutic trial of cobalamin.

Fifth, despite exhaustive arrays of investigations, some patients with macrocytic anaemia eventually require bone marrow biopsies (BMBs). If the BMB reveals unexplained megaloblastic changes, a therapeutic trial of cobalamin is warranted, because cobalamin, MMA and homocysteine testing may be unreliable in some cases.⁸

Sixth, iron deficiency can coexist with cobalamin deficiency in patients with PA or other malabsorption states.⁹ Therefore, it is recommended that serum cobalamin, folate and iron profile be assessed in tandem. If iron deficiency exists, it further supports the need for gastroscopy with or without biopsy.

Finally, careful blood smear examination for hypersegmented neutrophils and macroovalocytes may lead to the diagnosis of cobalamin deficiency in many cases (in the right context)

and even if patients present with no anaemia but with neuropsychiatric manifestations only.^{5,10} ■

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Response

Editor – Many thanks for the authors interest in our review. We fully agree with the several diagnostic pitfalls which need to be kept in mind while considering the diagnosis of vitamin B₁₂ deficiency and pernicious anaemia.

However, there are certain issues which we need to consider in this scenario. Firstly, performing serum methyl malonic acid and plasma homocysteine levels as routine work-up for vitamin B₁₂ deficiency is not common practice and also not available in many laboratories in the UK. The other issue which is becoming more common is considering serum B₁₂ testing as part of 'routine blood tests' without adequate thought into the clinical situation. This can lead to problems like the ordering physician overlooking vitamin deficiency as still a possibility for the patient's symptoms when normal serum B₁₂ levels are reported. Ideally in such cases, specialised tests like methyl malonic acid and serum homocysteine need to be performed.

On the other hand, routine B₁₂ testing can identify several patients as having levels slightly lower than the normal range and are labelled as having B₁₂ deficiency. These patients are sometimes given life-long intramuscular B₁₂ replacement which may have been entirely unnecessary.

The author also states the importance of blood film and bone marrow examination in selected situations. We again agree with the fact that blood film examination should be an essential part of the work-up for B₁₂ deficiency, but don't think bone marrow examination is appropriate due to the fact that it is invasive and should only be done if the suspicion is still strong despite normal investigations obtained from blood samples.

Since the publication of the review, we have had several correspondences on how many physicians do not consider

B₁₂ deficiency as the cause of symptoms in many individuals with varied problems, especially neurological symptoms. We have not been able to respond to all these individuals but do acknowledge the fact that missing the diagnosis of B₁₂ deficiency is quite widespread. We exhort the doctors to consider this diagnosis in patients with neurological symptoms and unexplained extreme tiredness among others, and not just macrocytosis and anaemia. In such cases, the appropriate investigations, including specialised tests in some cases, should be performed to exclude B₁₂ deficiency as the cause. ■

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LETTERS TO THE EDITOR

Clinical and scientific letters

OVERVIEW

Letters not directly related to articles published in *Clinical Medicine* and presenting unpublished original data should be submitted for publication in this section. Clinical and scientific letters should not exceed 500 words and may include one table and up to five references.

Point-of-care cardiac ultrasound in acute internal medicine: how can it be delivered?

Acute internal medicine (AIM) physicians frequently need to rule out potentially life-threatening pathology more quickly than is possible with a comprehensive standard echocardiogram. Point-of-care examinations using hand-held devices¹ are designed to identify key pathologies: pericardial tamponade; severe left ventricular impairment; critical valve disease; right ventricular dilatation as a sign of pulmonary embolism; and inferior vena cava (IVC) size and reactivity as a sign of loading.

It is vital that such scans are performed by operators appropriately trained, qualified and regulated, but no nationally agreed accreditation system in the UK exists. We propose one possible scheme.

Proposed certification in point-of-care cardiac ultrasonography

In 2007, we set up a process for specialists in intensive therapy² which has now been extended to AIM. It agrees with American Society of Echocardiography standards.³ There is an initial training day (Box 1). The candidate is then assigned a supervisor for practice in imaging and colour-Doppler mapping which focuses on four views: parasternal long-axis; parasternal short-axis; apical 4- and 5-chamber; and subcostal, including IVC. Most candidates become competent to obtain views reproducibly after approximately 30 scans after which a log book of 50 scans is collected. All studies are archived and reported using a 'tick-box' reporting form. The operator is

Box 1. Training in point-of-care echocardiography.

Training

- > Initial training day (introduction to basic physics, machine controls, hands-on training for 2 hours, presentations of digital clips demonstrating pathology and a practical test of interpretation and reporting).
- > Practical scanning under the supervision of a designated trainer; typically 30 scans with a satisfactory case mix to attain competence.
- > Logbook of a further 50 cases performed and reported 'solo' with each case reviewed and discussed with the trainer.
- > Attendance at departmental and external teaching sessions.
- > Self-directed learning from departmental digital archive.

Assessment

- > Practical competencies and the log-book are signed off by the trainer.
- > A written examination requires the reporting of 10 sets of clips in 1 hour set and marked by an examiner who is independent of the trainer.

Monitoring and quality assurance

- > Once certificated, a team structure continues encouraged by a sonographer responsible for training and supervision within AIM in conjunction with the main echocardiography department.
- > Feedback is given when patients have standard echocardiography.
- > Studies are presented and discussed at the weekly departmental meeting.
- > Activity data are audited by the AIM sonographer or head of AIM echocardiography.
- > A minimum of two studies per week must be performed.
- > Recertification is required every 5 years. This can be achieved by passing the 10 case examination in addition to a demonstration of continued learning.