AOTEA PATHOLOGY
- CLINICAL UPDATE

# Think First Before Ordering Vitamin B12 Testing

A recent study from Ireland found that there were a surprising 42,000 requests for vitamin B12 annually, in a population of 360,000. The rate of testing was increasing despite the low prevalence of actual deficiency being detected. Should this information make us pause and consider the appropriateness of our local test ordering practices?

In the Irish study, the introduction of guidelines that required a clinical indication for testing to proceed reduced test numbers by 70%, with no significant decrease in the number of abnormal results. In total only 4000 requests were rejected because of inappropriate indications as most of the reduction of nearly 30,000 tests was voluntary and occurred after the clinical guidelines had been sent to requestors. Their guideline included the following acceptable indications for Vitamin B12 testing:

- Haematologic: unexplained anaemia, macrocytosis
- Malabsorption, including metformin therapy
- Pregnancy
- Neurologic: peripheral neuropathy, unexplained dementia, "other"
- Dialysis patients
- Glossitis

Aotea Pathology (APL) receives approximately 35,000 requests for Vitamin B12 annually. Compared to our population size, this rate is similar to that seen in the Irish study, suggesting the test may be being requested inappropriately as a screen. Less than 5% of APLs results are under the lower end of the reference of 150pmol/L, and only 12-15% are under 200pmol/L. The clinical significance of most borderline low results is uncertain, as they are not associated with macrocytic anaemia or other markers of pernicious anaemia, and they do not progress. There do not appear to be clinical consequences, except perhaps in the elderly. However, interpretation of these borderline levels, even in the elderly, is difficult and the data relating to clinical consequences such as cognitive decline is unclear, as are the benefits of treatment.

There is a limited role for more complex investigations in individuals with borderline results who have a high risk of clinically significant vitamin B12 deficiency. Each case should be individually assessed. Further investigations could include measurement of methylmalonic acid, homocysteine and holotranscobalamin, but these should be discussed with a pathologist or relevant specialist prior to ordering. There is no particular threshold for borderline low vitamin B12 at which these tests are indicated.

Other centres in New Zealand have noticed similar high rates of Vitamin B12 requests and enforcement of clinical guidelines is being considered for the Auckland region. National guidelines already exist, through BPAC [see box] and these are very similar to the Irish guidelines. Of note, BPAC specify that measurement of B12 **is not** indicated as a first line test in the assessment of tiredness.

Whilst APL has agreement from the DHB's to initiate a demand management program to censor inappropriate vitamin B12 requesting, for now we do not intend to institute this program. Instead, we would prefer that requestors think carefully about the indications for ordering this test and state them clearly on the request form.

Groups at risk of vitamin B12 deficiency and/or who should be considered for testing

- Unexplained anaemia, especially with macrocytosis
- Unexplained neurological symptoms in people at high risk of deficiency
- GI disorders, eg Crohn's diseases, coeliac disease or other stomach or small intestinal disorders
- Medication related: metformin, prolonged use of proton pump inhibitors or H2 receptor antagonists
- Elderly because of higher incidence of atrophic gastritis and reduced acid secretion and especially if poor nutrition as well
- Pregnancy and lactation
- Strict vegan diets

Source: BPAC

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