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Haematology Diagnostic Network: Consensus advice to GPs

Indications for B12 Deficiency Testing: Primary Care guidelines

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Introduction:

These guidelines are being issued to provide nationally agreed advice for Scotland on appropriate requesting, of B12 testing. B12 testing is often performed indiscriminately as part of routine screening and, if unchecked, can lead to unnecessary diagnostic and management quandaries.

NB. Haematology laboratories will be adhering to nationally agreed **B12 minimum testing interval of 3 months although some labs will have longer exclusions**; repeat testing requests may be subject to electronic order lock-out if <3m, unless clinical need approved in advance.

Vitamin B12 deficiency:

Dietary Vitamin B12 is primarily found in meat, fish and dairy products. B12 forms a complex in the duodemum with intrinsic factor (produced in gastric parietal cells) and is absorbed in the terminal ileum. Deficiency can cause a macrocytosis with or without anaemia or pancytopenia. Neurological presentation can occur in the absence of haematological changes and early treatment is essential to avoid permanent neurological disability. Patients with strong clinical features of cobalamin deficiency can have levels that lie within the reference range. There is no “gold standard” test for the diagnosis of cobalamin deficiency so clinical features should always be considered alongside laboratory test results.

Causes of Low B12 levels

Pernicious anaemia, Vegan diet, Malabsorption syndromes (eg achlorhydria, gastric resection/bypass, Crohn’s disease, pancreatic insufficiency and gut infection eg.giardiasis, fishtapeworm) **Prolonged proton pump inhibition, Pregnancy/ combined oral contraceptive pill/ HRT, Metformin, Rare congenital causes in infants and children**

Indications for Vitamin B12 testing

1. Macrocytosis +/- anaemia
2. Pancytopenia
3. Unexplained neurological / neuropsychiatric symptoms eg. peripheral neuropathy/ sensory ataxia/ ambylopia/parasthesia; (newly diagnosed) dementia; visual loss.
4. Oral ulceration/ glossitis/ beefy tongue/ angular stomatitis.
5. Dietary deficiency (Vegan diet)

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6. Malabsorption syndromes
7. Oral B12 therapy

B12 Testing Results

Abnormal results out with laboratory normal ranges are flagged on reporting. Comments regarding likely B12 deficiency should be interpreted in the context of the clinical situation.

Cautions for Vitamin B12 testing

1. Tiredness is **NOT** an indication for testing.
2. Lower B12 levels are seen in patients taking the combined oral contraceptive pill/ HRT as well as in pregnancy. These levels are generally not clinically significant. Testing should **NOT** be undertaken in these situations **unless** one of the indications above is also present.
3. Low B12 levels, mild macrocytosis and mild thrombocytopenia (plt 100-149) are not uncommon in pregnancy and can be due to normal physiological changes.
4. If patient is on IM B12 replacement, repeat B12 testing is not indicated but FBC and reticulocyte response should be monitored initially.
5. High vitamin B12 levels are often of no clinical significance and associated with supplemental intake. There is an association with liver disease and blood disorders such as myeloproliferation.

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