



CLINICAL PRACTICE GUIDELINE

Vitamin B12 Deficiency : management of during Pregnancy

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Aim

To provide the best practice requirements for the management of vitamin B12 (B12) deficiency, for women receiving treatment and care at KEMH.

Background

B12 deficiency is rare; particularly in pregnancy however B12 deficiency should be excluded in women with unexplained anaemia, or in women who fail to respond to treatment for iron deficiency anaemia. In normal pregnancy, B12 levels fall by 30% by the third trimester of pregnancy¹. As B12 plays an important role in new tissue development, deficiency can be associated with infertility and repeated miscarriage^{1,2,3,4}. It is also seen in women generally aged >40 years as pernicious anaemia and related to a lack of intrinsic factor in the stomach. Pernicious anaemia is extremely rare in pregnancy^{3,4}. B12 is only found in foodstuffs from animals and is absorbed via the terminal ileum^{1,2,4}, thus it can also occur as a result of malabsorption and insufficient dietary intake.

Women at risk of developing B12 deficiency

- Elderly women (due to prevalence of gastric atrophy)
- Vegetarian diet, particularly vegan diets
- Previous gastric/ileac resection, or history of coeliac disease, inflammatory bowel disease
- Prolonged use of proton pump inhibitors, H2 receptor antagonists and biguanides (may interfere with absorption of B12 over time)

Signs and symptoms of B12 deficiency

The onsets of symptoms are slow to develop, as it takes up to 5 years for the body to become depleted³. Symptoms can include neuropsychiatric deficits including paraesthesia, numbness, memory loss, ataxia, depression, irritability and dementia.^{1,2,3,4,5} Other symptoms related to anaemia include glossitis, stomatitis and mild jaundice.^{1,2,3,4,5}

Interpretation of blood results to determine B12 deficiency in pregnancy can be difficult due to the physiological changes in pregnancy and the presence of iron deficiency.^{1,3,4,5} Thus advice from the Haematologist may be required. The blood film may demonstrate a macrocytic anaemia (abnormally large red blood cells), although this will not be visible with co-existing iron deficiency anaemia. Hypersegmentation of the neutrophils (more than 5 segments) can be seen.^{1,2,3,4,5,6} Serum B12 levels fall in pregnancy and thus are less reliable in assessing the degree of deficiency.^{1,5} B12 deficiency is considered when the serum B12 levels is <110 pmols/L.¹

Screening for B12 deficiency

Screening for B12 deficiency is available to:

- Women at increased risk of B12 deficiency (see above)
- Women with unexplained anaemia
- Women who fail to respond to treatment for iron deficiency anaemia

As of 1.6.2016 PathWest at QEII commenced offering an additional test (holoTranscobalamin or “active” vitamin B12) for patients with equivocal or low total vitamin B12 levels (i.e. in adults with a total vitamin B12 of less than 250 pmol/L). When total vitamin B12 is requested an active Vitamin B12 test is added by the laboratory when the total vitamin B12 is below the consensus cut off level of 250 pmol/L.

Preventing and treating B12 deficiency

Dietary requirements for B12 are 2.4mcg/day for non-pregnant women⁶. As B12 is animal sourced the recommendations for B12 supplements are for vegetarians and vegan women in pregnancy and lactation, with a recommended daily intake (RDI) 6 mcg/ day⁷.

As the aetiology of B12 deficiency is generally absorptive, the recommended form of treatment is parenteral B12.^{2,3,4} If there is a strong suspicion of B12 deficiency, a short course of oral B12 should be given, with further investigation post-delivery by the patients General Practitioner (GP).⁵

Hydroxycobalamin or cyanocobalamin 1000mcg/1mL given by intramuscular injection, once weekly for 3 weeks. However in severe cases of B12 deficiency, or if the patient is suffering from significant neurological symptoms, it can be administered more frequently. Seek Haematology advice if this is required.

It is important to correct any underlying iron deficiency, as treatment with B12 can cause rapid red cell production and associated iron depletion. Thus it is important to assess ferritin levels and treat iron deficiency accordingly.

Notes on treatment of outpatients

The patient can arrange for treatment for B12 deficiency directly with her GP, or be provided with a prescription for 3 doses, to be administered at GP practice or on return visits to KEMH.

Follow up of patients following treatment


If the patient continues to demonstrate a poor haematological response to treatment, consider referral to a Haematologist for further investigations. Women should be followed up and investigated individually by their GP following delivery. If they have received treatment for B12 deficiency during the pregnancy, B12 levels should be reassessed 2 months post-partum to confirm if the levels have returned to the normal ranges.^{1,5}

References

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Related WNHS policies, procedures and guidelines

[Anaemia in Pregnancy](#)

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