Vitamin B12 deficiency affects around 20% of seniors, and can cause memory impairment and even dementia, which becomes irreversible if not treated quickly. Thus, diagnosing and treating suspected B12 deficiency quickly and accurately is important. Because B12 levels can be inaccurate for a variety of reasons, a more reliable test, methylmalonic acid (MMA), is often requested to diagnose B12 deficiency.

Over a number of years, it was observed that MMA tests for seniors both at Ste. Anne’s Hospital and earlier at the Jewish General Hospital, had expected at least 20% to be abnormal.

When the appropriate reference range was used, MMA test results were abnormal in almost half of the cases where vitamin B12 deficiency was suspected.

Abnormal MMA values appear highly predictive of increased mortality.

The new reference range value was used when MMA results are reported, not only for Ste. Anne’s Hospital patients but for all MMA tests ordered from McGill and U. of Montreal hospitals.

Limitations: small sample, nursing home residents, most very elderly (>80 years), only males.

Vitamin B12 (Cobalamin) Measurement

- MMA level (micromol/L) or probable metabolic B12 deficiency (defined as MMA ≥0.45 micromol/L) or probable metabolic vitamin B12 deficiency (defined as MMA ≥0.75 micromol/L)

- MMA reference range: 0.27–0.47 micromol/L

Bibliography for MMA


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