

Title	Vitamin C blood level testing
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Aim

Vitamin C blood level is among the most carried out 60 tests on the additional list of the “Référentiel des actes innovants hors nomenclature” (RIHN, Reference Document for Innovative Procedures) Outside of the Nomenclature) in 2016, with over 40,000 tests reported to the French Ministry of Health by French healthcare facilities, i.e. a cost of over EUR one million (test referenced under codes K092, K093 and K174). While a severe and long-term vitamin C deficiency is known to lead to clinical manifestations characteristic of scurvy, this condition is currently very rare and its diagnosis does not explain this number of tests. However, other than scurvy, the indications that might explain the use of this test are not immediately clear, as evidenced by the results of a survey on hospital practices conducted by HAS at eleven healthcare facilities, which showed great differences in indications for prescription between organisations. Moreover, empirical administration of vitamin C is less expensive than the test and has no risk of toxicity at the standard recommended doses. In this context, HAS decided to take it upon itself to determine whether use of vitamin C blood level testing might justify inclusion in the “Nomenclature des actes de biologie médicale” (NABM, list of reimbursed biological procedures) in one or more of the primary contexts of use of this test reported by healthcare facilities, namely: bariatric surgery, malnutrition, gastrointestinal malabsorption, artificial nutrition and dialysis. Laboratory confirmation of a clinically suspected diagnosis of scurvy was considered a recognised indication.

Conclusions and results

The conclusions of HAS as to the benefit and seemingly sensible conditions for use of vitamin C blood level testing are as follows:

- vitamin C blood level testing is associated with significant difficulties before and after laboratory testing. The main risk of this may be an overdiagnosis of vitamin C deficiencies. Therefore, it is recommended that use of this test be limited to diagnostic confirmation of scurvy in patients with symptoms clinically suggestive of a long-term vitamin C deficiency (diffuse haemorrhages, gingival involvement, arthralgia, healing disorders);

- in the absence of symptoms clinically suggestive of a long-term vitamin C deficiency, vitamin C testing is not indicated in any of the following contexts:
 - nutritional assessments before or after bariatric surgery,
 - malnutrition assessments,
 - nutritional assessment of a patient with malabsorption,
 - nutritional assessment of a patient on artificial nutrition,
 - nutritional assessment of a patient on dialysis;
- HAS notes that inclusion in the NABM does not seem necessary for management of patients affected by a suspected diagnosis of scurvy when they are treated in a hospital setting, which is generally the case.

Methods

In order to determine whether or not use of vitamin C testing in the above-mentioned clinical contexts is based on a benefit consensually recognized by professionals in the areas concerned, the method selected was based on a critical analysis of best practice guidelines for management of patients in the contexts evaluated, established by a large panel of French and international health agencies and learned societies, and identified by a systematic literature search, in conjunction with a survey of the National Professional Council (CNP) of medical biology, CNP of endocrinology, diabetology and metabolic diseases, CNP of geriatrics, CNP of hepato-gastroenterology, CNP of nephrology and CNP of nutrition, (consulted as stakeholders).

Written by

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