Title
Clinical utility of the measurement of vitamin D

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Aim
A very large number of epidemiological and interventional studies have observed the
existence of a link between vitamin D and certain diseases, both bone diseases and
non-bone diseases. In parallel, the number of measurements of 25(OH)D performed in
France has increased considerably over about the last 10 years, becoming the largest item
of expenditure in relation to laboratory tests. Therefore, the question of the clinical utility of
this measurement has been raised. In this work, it was proposed that the measurement
would be considered useful i) if the link between vitamin D and disease has been
demonstrated, ii) if it is possible to define the therapeutic threshold for the concentration of
25(OH)D, and iii) if prior measurement would improve the clinical results of vitamin D
supplementation. A positive response to these three questions would justify the
measurement of 25(OH)D.

Conclusions and results
• In response to the first question of the assessment, neither the literature data nor the
opinion of the WG establishes an association between vitamin D and mortality, bone
mineral density in healthy children and adolescents, breast cancer, prostate cancer or
cystic fibrosis.
• In response to the second question, in the remaining situations studied, neither the
literature data nor the opinion of the WG permits the definition of the therapeutic target for
an improvement of the clinical signs or for risk reduction in the following situations: falls,
functional performances, colorectal cancer, arterial hypertension, cardiovascular diseases,
alergies, autoimmune diseases, type 2 diabetes, chronic renal failure, adverse events
during pregnancy, infectious diseases, cognitive performances or lipid profile.
In relation to the risk of fracture, an observational study seems to indicate that a threshold
concentration of vitamin D of at least 60 nmol/l would be necessary to observe a
protective effect in a population aged over 65. Because of the existence of a threshold of
this type, the working group considered that it could be useful to determine vitamin D in
patients with chronic illness that cause a shortage or deficiency of vitamin D, patients with
osteoporosis, or patients with a disease or undergoing a treatment that induces
osteoporosis. Nevertheless, the beneficial effect of supplementation reported in the
literature related to a very limited population (elderly population at risk of fracture – low
bone mineral density or osteoporosis – or an elderly population in institutional care).
Furthermore, this value of 60 nmol/l came from a single observational study.
• In response to the third question, in the only situation that has been studied that remains
at this stage, that is to say, the risk of fracture, no literature data have been identified, so it
is not possible to respond positively to this question.

In all the situations analysed in this assessment, the data analysed fail to demonstrate the
clinical utility of the measurement of vitamin D.
Methods
To answer these questions, a literature search was carried out. Two systematic reviews of good methodological quality were initially identified and a systematic search using the Medline, Embase, and Cochrane central database was carried out to identify all systematic reviews published since then. The selection criteria permitted the identification of 46 systematic reviews, 41 of them meta-analyses. These publications related to nineteen different clinical situations. A critical analysis of this literature was performed and the opinion of a working group (WG) made up of healthcare professionals from different specialities involved in these situations was ascertained.

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