Vitamin D and calcium: a systematic review of health outcomes (update)

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Record Status
This is a bibliographic record of a published health technology assessment from a member of INAHTA. No evaluation of the quality of this assessment has been made for the HTA database.

Citation

Authors' objectives
To systematically summarize the evidence on the relationship between vitamin D alone or in combination with calcium on selected health outcomes included in the earlier review: primarily those related to bone health, cardiovascular health, cancer, immune function, pregnancy, all-cause mortality, and vitamin D status; and to identify the vitamin D assay methods and procedures used for the interventional studies that aimed to assess the effect of vitamin D administration on serum 25(OH)D concentrations, and to stratify key outcomes by methods used to assay serum 25(OH)D concentrations.

Authors' conclusions
In solid agreement with the findings of the original report, the majority of the findings concerning vitamin D, alone or in combination with calcium, on the health outcomes of interest were inconsistent. Associations observed in prospective cohort and nested case-control studies were inconsistent, or when consistent, were rarely supported by the results of randomized controlled trials. Clear dose-response relationships between intakes of vitamin D and health outcomes were rarely observed. Although a large number of new studies (and longer followups to older studies) were identified, particularly for cardiovascular outcomes, all-cause mortality, several types of cancer, and intermediate outcomes for bone health, no firm conclusions can be drawn. Studies identified for the current report suggest a possible U-shaped association between serum 25(OH)D concentrations and both all-cause mortality and hypertension and also suggest that the level of supplemental vitamin D and calcium administered in the Women's Health Initiative Calcium-Vitamin D Trial are not associated with an increased risk for cardiovascular disease or cancer among postmenopausal women who are not taking additional supplemental vitamin D and calcium. Studies suggest the method used to assay 25(OH)D may influence the outcomes of dose-response assessments. Beyond these observations, it is difficult to make any substantive statements on the basis of the available evidence concerning the association of either serum 25(OH)D concentration, vitamin D supplementation, calcium intake, or the combination of both nutrients, with the various health outcomes because most of the findings were inconsistent.

Final publication URL

Indexing Status
Subject indexing assigned by CRD

MeSH
Humans; Calcium; Vitamin D

Language Published
English

Country of organisation
United States
English summary
An English language summary is available.

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AccessionNumber
32014001111

Date abstract record published
06/10/2014