Abstract

Title: Vitamin D supplementation has no effect on HDL and LDL in postmenopausal women - a systematic review
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Background: Postmenopausal women have a significantly increased risk of cardiovascular disease compared to before undergoing menopause. Dyslipidemia, which among other things can be characterized by high levels of LDL and low levels of HDL, is a risk factor for developing cardiovascular disease. Low levels of 25(OH)D have been associated with increased risk of both morbidity and mortality from cardiovascular disease.

Objective: The aim is to investigate whether there is enough scientific evidence to recommend vitamin D supplementation for improving serum HDL and LDL in postmenopausal women and thus reduce the risk of cardiovascular disease.

Search strategy: Two systematic searches in PubMed and Scopus were conducted. The keywords used was "vitamin D supplementation", "cholecalciferol", "D3", "ergocalciferols", "1α-hydroxyvitamin D", "Vitamin D", "alfacalcidol", "D2", "1,25-dihydroxyvitamin D", "1αD2", "1,25-dihydroxycholecalciferol D", "lipids", "cholesterol", "postmenopausal" and "menopausal". In Scopus, the keywords "RCT", "randomized controlled trial", "human", "women" and "supplement" were also added.

Selection criteria: The searches were limited to RCT:s in healthy postmenopausal women, comparing the efficacy of vitamin D supplementation on serum HDL and LDL compared to a control group.

Data collection and analysis: The quality of the selected articles was assessed using the GRADE system Form for quality review of randomized trials, produced by SBU. The compiled evidence was then assessed with the help of the University of Gothenburg’s summary of evidence form, Foundation for the compiled evidence according to GRADE.

Main results: Three RCT:s with 320, 489 and 305 postmenopausal women has been reviewed. The shortest study duration was twelve months, and the other two studies lasted 36 months. None of the three studies could demonstrate any effect of supplementation with vitamin D on HDL or LDL.

Conclusions: There is high evidence (++++) that supplementation with vitamin D does not have an effect on serum levels of HDL cholesterol or LDL cholesterol in healthy postmenopausal women.

Keywords: lipoprotein, HDL, LDL, cardiovascular disease, postmenopausal, vitamin D, supplementation