Abstract
Title: Does vitamin D supplementation have a favorable effect on total cholesterol, HDL cholesterol or LDL cholesterol in adults with type 2 diabetes?
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Background: Diabetes mellitus is one of the greatest public health diseases and is strongly associated with increased risk of cardiovascular diseases. A number of observational studies, prospective meta-analysis and interventional studies have examined the link between vitamin D deficiency and the risk of developing cardiovascular diseases and its risk markers. Nowadays there are theories of how vitamin D could affect serum lipid levels, both directly and indirectly through its effect on serum PTH and/or the calcium balance.

Objective: The aim of this systematic review was to compile the evidence of the effect of vitamin D supplementation on serum lipids in adults with type 2 diabetes.

Search strategy: The literature search was done in PubMed and Scopus with synonyms and MeSH-terms for search words for cholesterol, vitamin D supplementation and diabetes where the articles were assessed by their title and their abstract. All the references of the included articles were checked, using so called snowballing, and two more articles were included.

Selection criteria: The inclusion criterion on study design was RCT made on humans written in English or Swedish. Study populations which were included were those that included males or females ≥ 18 years diagnosed with type 2 diabetes. The intervention had to be vitamin D supplementation via oral tablet. Studies that included weight loss were excluded.

Data collection and analysis: “SBUs kvalitetsgranskning för randomiserade studier” was used for the quality examination. “Underlag för sammanvägd bedömning enligt GRADE” by the University of Gothenburg was used for the evidence examination.

Main results: Only one of the six articles showed a significant reduction in total cholesterol with vitamin D supplementation. The remaining five articles did not show any significant effect on total cholesterol, HDL or LDL.

Conclusions: This systematic review shows moderate evidence(++) for that there is no favorable effects of vitamin D supplementation on total cholesterol, HDL or LDL in adults with type 2 diabetes.

Keywords: cholesterol, HDL, LDL, blood lipids, serum lipids, vitamin D, calcitriol, cholecalciferol, vitamin D3, dietary supplement, diabetes