Abstract

Title: How does isoflavones in combination with soy protein impact cholesterol levels in hypercholesterolemic postmenopausal women relative to milk protein?

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Background: Hypercholesterolemia is a major risk factor for cardiovascular disease and the number one cause of death among women in Western countries. Declining levels of estrogen at menopause could be a contribution factor. Isoflavones is a vegetable substance, with structural and functional similarities to the human estrogen. This is a potential reason for possible cholesterol-lowering effects. The substrate of studies on isoflavones and its effect on cholesterol found today is ambiguous and there are uncertainties about which statements can be made.

Objective: To examine the scientific evidence on whether isoflavones in combination with isoflavones have a different impact on HDL- and LDL-cholesterol in hypercholesterolemic postmenopausal women in comparison with milk protein.

Search strategy: Literature searches were made in the databases PubMed and Scopus. Search words used were of relevance for the research question of this systematic review.

Selection criteria: Randomized controlled trials done on postmenopausal women were included. They compared isoflavones combined with soy protein with milk protein and were performed on women with elevated levels of total- and/or LDL-cholesterol. Studies conducted on populations with hormone – and/or cholesterol -lowering therapy were excluded.

Data collection and analysis: The literature search yielded three RCTs which were validated using SBU’s Granskningstall för randomiserade kontrollerade studier. The strength of evidence for the included studies was then weighed together with Göteborgs universitets sammanfattande evidensformulär.

Main results: Two of the studies were estimated to have a mediate-high study quality and the third was judged to have a mediate-high to high study quality. The summarized grade of evidence for the selected outcome measures were considered mediate-high. Only one study found a significant difference in LDL-cholesterol between intervention- and control group. None of the studies showed a significant difference in HDL cholesterol.

Conclusions: There is moderate evidence that isoflavones in combination with soy protein does not provide any significant difference in impact on HDL-cholesterol compared with milk protein, in hypercholesterolemic postmenopausal women. As the effect on LDL-cholesterol differs between the included studies no conclusions can be drawn. The scientific substrate with estimated moderate evidence shows an ambiguous result for the outcome measure LDL-cholesterol. Though the result indicates that higher levels of naturally occurring isoflavones could potentially provide a greater reduction compared with milk protein.