The Effect of Different Vegetarian Diets on Cardiometabolic Profile in People With or At High Risk of Cardiovascular Diseases: A Systematic Review and Meta-Analysis

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Objectives: This systematic review and meta-analysis assesses the effect of various vegetarian diets on cardiometabolic risk factors (systolic blood pressure (SBP), low-density lipoprotein cholesterol (LDL-C), hemoglobin A1c (HbA1c)) in people with cardiovascular diseases (CVDs) or people with at least two risk factors of CVDs.

Methods: We performed systematic searches in EMBASE, MEDLINE, CINAHL and CENTRAL, from inception until 31st July 2021 for randomised controlled trials of vegetarian diet interventions in people with CVDs or people with at least two risk factors (e.g. being overweight, high blood pressure, high total cholesterol/LDL-C, high blood glucose) of CVDs. Trials had to use a non-vegetarian diet as the comparison diet and measure at least one of these outcomes: LDL-C, HbA1c and SBP. We extracted demographics, study design, sample size, and diet description of intervention and control group from included studies. We assessed the risk of bias of studies using the Cochrane Risk of Bias Assessment Tool 2.0. A random-effects model was used to assess mean changes in LDL-C, HbA1c, SBP and body weight. We evaluated the overall certainty of evidence using the GRADE (Grading of Recommendations, Assessment, Development, and Evaluation) tool.

Results: Of the 7871 records screened, 29 (20 studies) met our inclusion criteria. Four studies targeted people with CVD, seven focused on people with type 2 diabetes mellitus and the remaining included people with at least two risk factors of CVDs. Meta-analyses showed that consuming vegetarian diets for at least 12 weeks significantly decreased LDL-C, HbA1c, and weight, by 6.8mg/dL (95%CI: −10.7, −3.0), 0.25% (95%CI: −0.43, −0.06), 3.4kg (95%CI: −4.6, −2.2), respectively, but the effect on SBP was not significant (−0.1 mmHg, 95%CI: −2.8, 2.6). The GRADE assessment showed a moderate level of evidence for LDL-C and HbA1c reduction.

Conclusions: Consuming vegetarian diets causes a moderate improvement of LDL-C, HbA1c and body weight in people at high risk of CVD, highlighting the protective effects of vegetarian diets in the primary prevention of CVD. Additional high-quality clinical trials are warranted to further explore the effect of this diet in people with CVD.

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