VEgetaRian Diet in patients with Ischemic heart disease (VERDI): an open-label, randomized, prospective, cross-over study

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Background: A vegetarian diet (VD) in patients diagnosed with ischemic heart disease (IHD) may reduce future cardiovascular risk.  

Purpose: The study hypothesis was that patients diagnosed with IHD can benefit from a VD assessed by multiple risk markers for this type of disease.  

Methods: In a crossover study patients diagnosed with IHD, treated by percutaneous coronary intervention and on optimal medical therapy were randomly allocated to a 4-week intervention with ready-made (lunch and dinner) isocaloric VD or meat diet (MD). The primary outcome was change in oxidized low-density lipoprotein cholesterol (LDL-C) levels. Secondary outcomes were difference in changes of blood lipids, weight, body mass index (BMI), blood pressure, heart rate, glycated haemoglobin (HbA1c), number of participants reaching guideline target values, quality of life, gut microbiota, and trimethylamine N-oxide between the two interventions.  

Results: 31 participants were recruited (median age: 67 years, male sex: 93.5%). Significant between-intervention differences (VD vs MD) were found in oxidized LDL-C (−2.73 U/L; p=0.015), total cholesterol (TC) (−0.13 mmol/L; p=0.01), LDL-C (−0.10 mmol/L; p=0.02), weight (−0.67 kg, p=0.008) and BMI (−0.21 kg/m², p=0.009). After VD, numerically more subjects reached guideline LDL-C target values (87% vs 77%) but this did not reach statistical significance (p=0.07). During VD intervention the diet led to a significant reduction in oxidized LDL-C, TC, LDL-C, HDL-C, ApoB, and ApoB/ApoA1 ratio.  

Conclusions: Our results suggest that in patients with IHD a VD compared to a MD, lowers oxidative stress, improves lipid profile and lowers BMI.