

Title: A primary prevention pilot study on the effects of a personalized diet on cardiovascular disease (CVD) risk factors and Trimethylamine N-oxide (TMAO) in people living with HIV (PLWH)

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Background and aims. Atherosclerotic CVD is a comorbidity factor in PLWH. A normal body weight and a good level of physical activity are paramount to reduce cardiovascular risk (CVR). The aim of this study was to assess the effects of a personalized diet on CVR factors and TMAO.

Research Methods & Procedures. Stable PLWH on antiretroviral treatment with a CVR >10% (using the ASCVD algorithm) were enrolled. Patients received a personalized balanced diet scheme with recommended daily amount of fibre. All patients were advised to avoid or reduce alcohol intake and to practice physical activity. Routine blood tests, TMAO serum concentrations and bioimpedance analysis were performed at baseline and at 6 months. This study was conducted during COVID-19 pandemic.

Results. We enrolled 10 participants, male, median age 60.5 years and with a median baseline BMI 27.5 Kg/m². At 6 months we observed non-significant reductions in BMI and in fat body mass, a stability in fat free mass and in reported dietary intake. Fasting glucose, CRP, mild fasting insulin and HOMA index improved or remained stable. TMAO concentrations showed a significant increase, together with total and HDL cholesterol, triglycerides worsening.

Conclusion. Surprisingly, the study has shown an increase in TMAO levels in enrolled patients. The possible explanation is that pandemic period has determined a poor compliance in dietary intake and in physical activity as reported in literature and as we observed. Further studies are required to better understand this gap.