cause mortality. Dairy showed a similar association, though the estimate was imprecise (HR 0.92, 95 % CI 0.81; 1.05). Higher potato intake was positively associated with all-cause mortality (HR 1.11, 95 % CI 1.01; 1.24), and the HR for red meat was 1.08 (95 % CI 0.99; 1.19). There was an indication for effect modification by diabetes subgroups, with some associations more pronounced in individuals with elevated waist circumference and higher HbA_{1c} values.

Conclusions: In individuals with T2D, higher consumption of vegetables and fresh fruit, nuts, and whole grains was associated with lower all-cause mortality, while potato and red meat intake showed positive associations. There is an indication that associations differed across diabetes subgroups.

A42

Anti-obesity innovative therapies improve atherogenic lipoproteins and inflammatory biomarkers in adults with overweight or obesity: a 3-month prospective study

Vaccaro, Francesca; University of Palermo; Italy

Co-Authors: Muratore, Elena; Maggio, Viviana; Patti, Angelo Maria; Di Falco, Felicia; Mistretta, Valentina; Giammanco, Marco; Rizzo, Manfredi

Aims/Hypothesis: Obesity is strongly associated with atherogenic dyslipidemia and chronic low-grade inflammation, both key drivers of cardiovascular risk. Innovative anti-obesity therapies, including glucagon-like peptide-1 (GLP1) receptor agonists and dual glucose-dependent insulinotropic polypeptide (GIP)/GLP1 receptor agonists, may improve lipoprotein profile and exert early anti-inflammatory effects beyond weight reduction, particularly when combined with dietary interventions. This study evaluated the early effects of GLP1- and GLP1/GIP–based therapies combined with an anti-inflammatory Mediterranean diet on atherogenic lipoproteins, including small dense low-density lipoproteins (sdLDL), as well as inflammatory biomarkers and anthropometric parameters in adults with overweight or obesity with at least one obesity-related comorbidity.

Methods: In a prospective observational study 40 overweight or obese adults were evaluated over 3 months. Participants were stratified into traditional care (Group 1, n = 20), with very large use of metformin (90 %), and innovative therapy (Group 2, n = 20), with the use of semaglutide or tirzepatide (100 %). All participants received individualised nutritional counseling based on an anti-inflammatory Mediterranean diet. Anthropometric parameters, lipoprotein subfractions assessed by nuclear magnetic resonance spectroscopy, and circulating inflammatory biomarkers, including interleukin-6 (IL-6) and C-reactive protein (CPR), were measured at baseline and after 3 months of therapy.

Results: After 3 months, in relation to Group 1, patients in Group 2 showed a greater reduction in body weight (-13.1 % vs -0.5 %), BMI (-12.1 % vs -1.7 %), and waist circumference (-8.5 % vs -0.1 %), with $p < 0.001$ for all. Lipoprotein analysis revealed a significant reduction in atherogenic sdLDL, which was more pronounced in Group 2 than Group 1 (-75 % vs -54 %, $p = 0.032$). Group 2 further showed a significant decrease in both IL-6 (-36 %, $p = 0.004$) and CRP (-40 %, $p = 0.008$) levels.

Conclusions: Innovative anti-obesity therapies, combined with an anti-inflammatory dietary intervention, induced significant improvements in anthropometric parameters and favorable modulation of both atherogenic lipoproteins and inflammatory biomarkers during a 3-month follow-up.

A43

Artificial intelligence-based retinal screening and ocular parameters in cardiometabolic disease: an ophthalmologist-confirmed RWE study

Muratore, Elena; University of Palermo; Italy

Co-Authors: Patti, Angelo Maria; Di Falco, Felicia; Maggio, Viviana; Vaccaro, Francesca; Giammanco, Manfredi Marco; Vadalà, Maria; Bonfiglio, Vincenza Maria Elena; Giammanco, Marco; Rizzo, Manfredi

Aims/Hypothesis: AI-based retinal screening can detect retinal alterations requiring specialist confirmation and further characterisation through optical coherence tomography (OCT). This study evaluated the distribution of OCT-derived ocular parameters, including central retinal thickness (CRT) and intraocular pressure (IOP), in relation to glycaemic and vascular parameters among AI screened-positive patients.

Methods: 301 consecutive adults with overweight, obesity, or T2DM were recruited and underwent comprehensive cardiometabolic assessment including fasting glucose, HbA_{1c}, carotid intima-media thickness (cIMT), carotid stenosis, and flow-mediated dilation (FMD). Retinal screening was performed using the Aireen AI system. The 42 patients (14 %) who tested positive at AI-based retinal screening (RS+) underwent ophthalmologist-confirmed evaluation including OCT assessment of CRT and IOP. Statistical analyses included ANOVA, multivariate logistic regression, and Spearman rank correlation.

Results: In RS+ patients significant trends were observed across CRT and IOP categories in relation to glycaemic burden. CRT > 280 µm, indicative of early retinal thickening or diabetic macular edema, was significantly associated with HbA_{1c} ($p = 0.035$) and fasting glucose ($p = 0.049$). Notably, 91.7 % of patients with CRT > 280 µm had $HbA_{1c} > 6.5$ %, suggesting that worsening glycaemic control is strongly linked to structural retinal deterioration. IOP also showed a significant overall trend ($p < 0.001$), with 52.8 % of RS+ patients exhibiting high-normal values (> 16 mmHg). Spearman rank correlation analyses further supported these findings with CRT showing a significant positive correlation with HbA_{1c} ($\rho = 0.444$, $p = 0.045$).

Conclusions: Among AI screen-positive patients, OCT-derived retinal structural parameters, particularly CRT, demonstrated meaningful associations with glycaemic burden, reinforcing the role of glycaemic control in microvascular and retinal damage. These findings suggest that retinal alterations detected by OCT may serve as an accessible window into systemic cardiometabolic dysregulation. Integrating AI-based screening with specialist OCT evaluation and glycaemic profiling may enhance early identification of high-risk individuals, supporting a more comprehensive and metabolically-informed approach to cardiovascular and microvascular risk management.