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Liraglutide is more effective than lifestyle changes in modulating subcutaneous and visceral fat distribution, liver steatosis, insulin sensitivity and beta-cell function after comparable weight loss

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Obesity, insulin resistance and beta cell deterioration are key issues in the development and progression of type 2 diabetes (T2DM). Given the concurrent effects acknowledged for GLP-1 agonists on body weight, fat mass, insulin resistance and beta cell preservation, we hypothesized that this class of drugs may exert additional actions on top of those anticipated for lifestyle intervention-mediated weight loss. Twenty-nine metformin-treated obese subjects with impaired glucose tolerance (IGT), impaired fasting glucose (IFG) or newly diagnosed T2DM, were randomized to liraglutide treatment (1.8 mg/d) or lifestyle counseling to assess whether changes in subcutaneous (SAT) and visceral (VAT) adipose tissue distribution and in degree of non-alcoholic fatty liver disease (NAFLD) (all assessed by MRI) after a modest and comparable weight loss (7% of initial body weight), might affect insulin sensitivity (Matsuda Index) and β-cell performance (by insulin secretion-sensitivity index-2 (ISSI-2)) during multiple sampling oral glucose tolerance test. SAT and NAFLD grade were significantly and comparably reduced in both treatment groups, whereas insulin sensitivity was not significantly affected by any intervention. In contrast, the liraglutide group showed a significantly greater reduction in median VAT (p=0.001), as compared to the lifestyle group (-15.3% vs. -7.3% median decrease) and a greater improvement in beta cell function (ISSI-2) (96.3% vs. 29.8%, p=0.006), which translated into a significantly more pronounced reduction in both fasting, 1-hour and 2-hour postprandial plasma glucose, despite comparably reduced *HbA1c* in both groups (by 7.0%). In the liraglutide arm, but not in the lifestyle arm, VAT values were significantly related to ISSI-2 (Rho=-0.60, p=0.023) and adiponectin levels (Rho=-0-589, p=0.021) throughout the intervention period. This pilot study may help establishing a cause-and-effect relationship between VAT inflammation, beta cell performance and development or progression of T2DM, unravelling as well potential mechanisms by which liraglutide may favorably impact T2DM pathogenesis.

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Psychosocial functioning in diabetes patients: Implications for clinical practice

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There is an increase in the incidence of diabetes in Sub-Saharan Africa and evidence of increased risk of several psychosocial problems including depression, anxiety, and distress among individuals with diabetes. However, few Sub-Saharan empirical studies have documented psychosocial issues affecting individuals living with diabetes. This presentation reviews results from 4 empirical studies from Zambia investigating psychosocial functioning and factors including stress, stress coping strategies, stigma, depression, diabetes specific emotional distress, diabetes self-care, quality of care and life in Zambian individuals with diabetes mellitus. Key findings indicated that comorbid depression and emotional stress are common in patients with diabetes. These psychological issues seem to be compounded by poor stress coping strategies, poor quality of life and care in the patients. In order to improve the lives of patients, health care provision and self-care among patients must first be improved. Clinicians must identify, register and treat psychosocial issues affecting patients. Awareness and education on diabetes must be accelerated and medical care awareness amid tradition medicine in Sub-Saharan African countries must be improved. Policy makers, clinicians and others stakeholders must work together to improve health care and quality of life of patients.

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