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THE VERY LOW CARBOHYDRATE DIET (VLCBD): SHORT-TERM METABOLIC EFFICACY IN DIABETIC KIDNEY DISEASE PATIENTS

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INTRODUCTION

Obesity is strongly linked to the development of diabetic kidney disease. While very low carbohydrate diet (VLCBD) was associated with weight reduction, its effects on patients with diabetic kidney disease (DKD) are not well known. The aim of the study was to determine the metabolic effects of VLCBD in DKD patients.

METHODOLOGY

30 patients with type 2 diabetes aged 40 to 75 years and HbA1c of 7 to 10.5% were randomly allocated to receive VLCBD (<20 g/day) versus standard low protein diet (LPD) (0.8 g/kg/day). The patients received consultations every two weeks for 12 weeks. Metabolic profiles, glycemic control, inflammatory markers and visceral adipose tissue mass were compared.

RESULTS

The VLCBD group demonstrated significant reductions in weight [-4.0 interquartile range (IQR) 3.9 versus 0.2 IQR 4.2 kg, $p < 0.001$] and body mass index (-1.5 IQR 1.18 versus 0.074 IQR 1.54 kg/m², $p < 0.001$) compared to the LPD group. Waist circumferences were reduced in both groups (-4.0 IQR 5.25, $p = 0.003$ and -2.0 IQR 3.6 cm, $p = 0.009$). Estimated visceral adipose tissue mass and volume were significantly reduced in the VLCBD group. There were no significant changes in liver ultrasonographic findings in both groups. Both groups also showed a reduction in HbA1c (-1.3 IQR 1.1 versus -0.7 IQR 1.25%, $p = \text{NS}$). There was a significant increment in LDL in the VLCBD. The VLCBD group showed a significant reduction in IL-6 levels (-1.53 IQR 3.35 versus 0.46 IQR 1.95 pg/mL, $p = 0.028$). Patients in VLCBD appeared to have an improvement in physical activity score compared to the LPD group.

CONCLUSION

After short-term intensive VLCBD intervention in DKD patients, improvements were observed in metabolic markers, diabetes status and inflammatory markers, supported by improvement in physical activity.