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International conference on

DIABETES, NUTRITION, METABOLISM & MEDICARE

July 24-26, 2017 | Vancouver, Canada

Effect of low carbohydrate diet on metabolism in patients with type 2 diabetes mellitus

Xiao Hua Wang[1, 2] and **Qi Wang**[1]

[1]The Division of Cardiology, the First Affiliated Hospital of Soochow University, Suzhou, China

[2]School of Nursing, Soochow University, Suzhou, China

Background: Currently, low-fat diet is mainly recommended in America and China [1]. However, the diet among T2DM are not complete accordance to the recommended protocol. Low-Carbohydrate Diet (LCD) achieved greater improvement in the lipid profile and blood glucose stability compared to low-fat diet [2]. In addition, food rich in carbohydrate were preferred by Chinese. It is worth of exploring the feasibility and effect of LCD in Chinese DM patients.

Methods: We total enrolled 31 T2DM patients according to inclusion and exclusion. They were intentionally grouped into LCD group (N = 18) and Low-Fat Diet (LFD) group (N = 20).LFD group received regular loose LFD education (Six points Formulas); LCD group received loose LCD(Six points Formulas) education. After three months, we compared the percentage of energy from three macronutrients, HbA1c, BMI, TC, TG, LDL-C, HLD-C, insulin dose, the frequency of hypoglycemia.

Results: (1) Adherence to LCD and LFD There were three patients missing or excluded in LCD group: one could not complete LCD, one was out-of-touch and another experienced appendectomy. However, four patients could not complete diet regimen in LFD group. (2) The percentages of energy from three macronutrients The percentages of energy from three macronutrients in LCD and LFD after intervention were all met the definition of LCD and LFD. (3) HbA1c The levels of HbA1c between intra-group in two group were significantly decreased (4) Lipids profile Compared with baseline, BMI, TG and HDL - C in LCD group were improved significantly after the intervention($P<0.01$); while BMI only was improved in LFD group($P<0.01$). After the intervention, the serum lipids profile had no difference between groups. (5) Insulin dose There were significantly reduced doses of insulin after intervention in both of groups (6) Hypoglycemia After the 3 months interventions, the frequency of hypoglycemia in LCD group has decreased significantly, compared to the baseline ($P<0.05$). In LFD group, the frequency of hypoglycemia had no significant change.

Discussion: LCD intervention is feasible and easy-operated/ practical for the Chinese T2DM patients. It can effectively improve blood glucose, blood lipid and BMI. At the same time, it can reduce the dosage of insulin in patients with T2DM for the short term. This strategy should be recommended in Chinese T2DM patients.

Biography

Xiao Hua Wang has completed her PhD majored in immunology from Soochow University. She has been the director of Medical Nursing over ten years. She has published more than 30 papers in impact journals and has been serving as a reviewer of some journals.

sxwang2001@163.com

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