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Multidisciplinary Approach in Managing Patients with Pre-diabetes

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Introduction

It is well recognized that diabetes is an important cause of premature death and disability worldwide, posing a great economic burden to the health care system. Pre-diabetes is the risk factor for developing such serious chronic disease. It is therefore crucial to target patients with pre-diabetes for early intervention in primary care setting.

Objectives

This study aims to improve the blood glucose control among pre-diabetes patients, and also to improve the measurements of other cardiovascular risk factors including lipid profiles, body mass index, percentage of body fat, and cardiovascular fitness.

Methodology

A single-arm, prospective trial was performed among patients with impaired fasting glucose or impaired glucose tolerance at Ha Kwai Chung General Outpatient Clinic from June 2015 to June 2016. Patients meeting the inclusion criteria were invited to join a 6-month structured program by dietitian and physiotherapist (n=61). The program was conducted in groups of 10-15 participants. Participants first received a group session by nurse and dietitian, following by an individual assessment by physiotherapist within 4 weeks. Several group and individual sessions were provided by dietitian and physiotherapist throughout the program. Dietitian focused on meal planning, carbohydrate counting and low-fat dining out choices, while physiotherapist provided exercise prescription and developed individualized exercise plan. Blood test was arranged and physical assessment was performed at the end of the program.

Result

A total of 46 participants aged 40-84 were included in the study, in which 60.9% and 82.6% of the participants had hyperlipidemia and hypertension respectively. At the end of 6 months, fasting blood glucose decreased by 0.31mmol/L ($p<0.05$), HbA1c level decreased by 0.13% ($p=0.01$), and triglyceride level decreased by 0.29mmol/L ($p=0.04$) among the participants. Step test result of the participants improved from 95

steps/2 min to 109 steps/2min ($p=0.002$) in all age groups. No significant effect on body mass index, percent body fat, total cholesterol, LDL-cholesterol, and HDL-cholesterol were observed. Subsequent analysis by one-way ANOVA showed that the change of fasting blood glucose was affected by age group ($p=0.045$), in which participants aged 40-49 achieved the greatest reduction. T test showed that male participants had a greater reduction in triglyceride ($p=0.018$). To conclude, a structured multidisciplinary program was effective in improving blood glucose control and some of the cardiovascular risk factors. Age specific program should be considered.