

EM-07 The beneficial effects of Qigong and conventional exercise on blood pressure and anthropometric indices in type 2 Chinese diabetic patients

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Introduction: Exercise is generally accepted as a cornerstone of diabetes management, because it promotes caloric expenditure and improves insulin sensitivity. Qigong is an alternative exercise program, widely practiced in China, which is believed to have the effect of self-regulating various functional activities of the body, leading to alterations in metabolic rate and potential benefits on glycaemic control. In this study we investigated the effects of qigong versus conventional exercise in 100 Chinese type 2 diabetic patients with suboptimal glycaemic control.

Method: Patients were randomised to either of 2 groups, to learn and practice the scheduled conventional exercise or qigong program with matched exercise intensity for 18 weeks, under the supervision of a physiotherapist and qigong therapist, respectively. They were also instructed to practice it at home. All medications remained unchanged throughout the study.

Results: During the study period neither group showed any significant improvement in HbA1c or insulin sensitivity as measured by HOMA or QUICKI. Qigong had a superior effect on HDL-C, with a significantly larger proportion of subjects having a HDL-C > 0.9 mmol/l at the end of the study (OR=1.84; p=0.023 versus conventional exercise), but a smaller proportion of subjects maintaining a BMI < 23 (OR=0.7; p=0.038). When data from the two groups were combined, an improvement in both systolic and diastolic blood pressure was observed, increasing in magnitude as the study progressed (sBP: -3.42±1.37, p=0.012 at week 10 and -4.52±1.57, p=0.004 at week 18; dBp: -3.23±0.98, p=0.001 at week 10 and -5.07±1.15, p<0.001 at week 18). Similar reductions in waist and hip circumferences were also noted (waist: -0.32±0.12cm, p=0.006 at week 10 and -0.49±0.16cm, p=0.002 at week 18; hip: -0.30±0.11cm, p=0.006 at week 10 and -0.38±0.16cm, p=0.015 at week 18).

Conclusion: We concluded that long-term exercise, either qigong or conventional exercise, was associated with beneficial effects on various aspects of the metabolic syndrome in patients with type 2 diabetes.

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EM-08 The effect of glycoxidized LDL on monocytes/ macrophages cell line (THP-1) gene expression

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Introduction: Cardiovascular complications are the leading cause of morbidity and mortality in patients with diabetes mellitus. Epidemiological studies have shown that hyperglycemia and dyslipidemia are two risk factors for diabetic atherosclerosis. Lipoprotein is subjected to both glycation and oxidation in diabetes. The biological effects of glycoxidized LDL have not been well characterized. The objective of this study is to investigate whether glycoxidized LDL induce the gene expression of human monocyte/macrophages, using the THP-1 cell line, by modified lipoprotein.

Methods: Glycoxidized LDL was obtained by incubating LDL with glucose and copper ion for 7 days. The extent of oxidation was measured by TBARS assay. Monocytes/ macrophages cell (THP-1) was incubated with glycoxidized LDL for one day. The gene expressions were quantified using quantitative PCR.

Results: The oxidation of glycoxidized LDL was significantly higher than native LDL (7.12±2.7 nmol MDA/mg protein versus 1.615±0.459 nmol MDA/mg protein). The gene expression of CD36 has been upregulated by 4.6±1.09 folds when incubated with glycoxidized LDL at 100ug/ml. The gene expression of SR-BI was suppressed by glycoxidized LDL by 4.8±1.64 folds.

Conclusion: Glycoxidized LDL regulate the gene expression of CD36 which may increase the binding and internalization of modified LDLs by macrophages. Down regulation of SR-BI may lead to a decrease in cholesterol efflux. These gene expression profiles have suggested some potential mechanisms for the contribution of modified LDL to the development of diabetic atherosclerosis.