CHAPTER VI

CONCLUSION

This Quasi-experimental study investigated the effects of WPI supplementation on clinical outcomes and insulin resistance in type 2 diabetic patients. After daily supplementation of 30-g WPI for 6 weeks, there were no significant differences in FPG, serum insulin, HbA1c, HOMA-IR, HOMA-B%, total-C, HDL-C and LDL-C both within group and between groups. However, TG level was significantly reduced from baseline in the treatment group, but there was no significant difference between groups. Interestingly, the TG lowering effect of WPI was more marked in the subjects with initial TG $\geq$ 150 mg/dl. Significant reduction in SBP, body weight and BMI were also observed in the treatment group. The results suggested that short-term consumption of WPI was generally safe for type 2 diabetic subjects because no serious adverse event was observed. Only 3 of 18 subjects experienced mild flatulence during the WPI supplementation period, and none of them dropped out from this study. However, significant increase in ALP and BUN levels were observed in the treatment group. Therefore, longer-term studies are necessary to determine the adverse effects of whey protein supplementation.

In conclusion, this study indicated that 6-week WPI supplementation did not affect glycemic control and insulin resistance in type 2 diabetic patients. However, WPI supplementation in type 2 diabetic patients with TG higher than 150 mg/dl, elevated blood pressure and/or metabolic syndrome may be associated with a potentially decreased risk of cardiovascular disease by decreasing the levels of TG, blood pressure, and body weight.

Limitations of the study

There are some limitations of this study including small number of subjects, short course of treatment period, and no placebo supplementation in the control group. In addition, significant changes in amounts of protein and carbohydrate intake during WPI supplementation may impact on the clinical outcomes. Consequently, it cannot isolate the independent effects of whey protein on lowering TG, blood pressure, and body weight.

Recommendations for further study

The future research should have longer treatment period, large number of subjects. The effective dose of whey protein on reducing blood pressure, TG, and body weight should be determined. Further double-blind, randomized clinical study should be conducted to confirm these findings and to investigate effects of whey protein in comparison with other proteins. Additionally, the efficacy of whey protein supplementation should be studied in other groups of patients such as severely dyslipidemia, hypertension, or metabolic syndrome to potentially maximize the effect of whey protein.