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Supplementation of Freeze-Dried Ivy Gourd Leaf Extract on Cardiovascular Risk Factors and Atherogenic Index in Patients with Newly Diagnosed Type 2 Diabetes Mellitus

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Introduction: Cardiovascular diseases (CVD) are the leading cause of morbidity and mortality in patients with type 2 diabetes mellitus (T2DM). Dietary and pharmacotherapeutic interventions to modify risk factors of CVD in patients with newly diagnosed T2DM are important. The cardioprotective activity of Ivy gourd; *Coccinia grandis* (L.) Voigt (Cucurbitaceae) has been proven in animal models of diabetes mellitus.

Objective: To determine the effect of supplementation of freeze dried powder of aqueous refluxed Ivy gourd leaf extract on body mass index (BMI), waist circumference (WC), atherogenic index (AI), cardio-protective index (CPI) and coronary risk index (CRI) in newly diagnosed patients with T2DM

Methods: Seventy three newly diagnosed patients with T2DM aged 30-60 years were treated with newly developed herbal capsule of freeze dried powder of hot water leaf extract of Ivy gourd (500 mg) once daily for three months. Height, weight and WC were measured and fasting serum total cholesterol (TC), triglyceride, high-density lipoprotein cholesterol (HDL-C) and low-density lipoprotein cholesterol (LDL-C) were estimated at the baseline and at the end of three months. BMI and AI (TC-HDL-C/HDL-C), CPI (HDL-C/LDL-C) and CRI (TC/HDL-C) were calculated. Within group changes at the end of the intervention against baseline were compared using Wilcoxon signed-rank test. $p \leq 0.05$ was considered as statistically significant.

Results: The mean BMI and WC of study population were 25.46 kg/m² and 89.36 cm respectively. The treatment of Ivy gourd capsule led to significant reductions in mean BMI by 1.02% ($p = 0.019$), AI by 10.24% ($p = 0.006$) and CRI by 7.87% ($p = 0.006$) with significant increment of CPI by 9.43% ($p = 0.008$). There was no significant effect on WC upon the supplementation of Ivy gourd.

Conclusion: The supplementation of Ivy gourd (500 mg per day) for three months improved the CVD risk factors and would be a therapeutic promise to modify CVD risk in patients with newly diagnosed T2DM.

Keywords: Atherogenesis, Cardio protection, Ivy gourd supplementation, Type 2 diabetes mellitus

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