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The efficacy of Garcinia mangostana to reduce endothelial dysfunction and dyslipidemia in high Framingham risk score patients

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Background: Endothelial dysfunction and dyslipidemia have an important role in the development of atherosclerotic cardiovascular disease. Garcinia mangostana is an extract of mangosteen that has anti-inflammatory, immunomodulatory, antioxidant and anti-lipid effect. High level of inflammation, lipid profiles, oxidant markers and circulating endothelial cell (CEC) with low level of endothelial progenitor cell (EPC) predict poor outcomes of endothelial damage. This study was aimed to compare the efficacy of Garcinia mangostana to reduce endothelial dysfunction and dyslipidemia in high Framingham risk score to compare with placebo. Parameters will be measured are inflammatory markers (IL-6, TNF α, HsCRP), CEC, EPC, and lipid profiles (Total cholesterol, HDL, LDL and Triglycerides).

Methods: A randomized, single blind, placebo-controlled clinical trial was conducted in 90 high Framingham risk score patients. Study group will consume Garcinia mangostana 5x 550 mg for three months as an additional therapy of their regular medications and control group will consume placebo. The data was analyzed by paired t-test for parametric data and Wilcoxon test for non-parametric data.

Results: Post-test was performed after Garcinia mangostana administration for three months. Inflammation parameters in study group (IL-6, IL-1 and HsCRP) concentration was significantly decrease compared with placebo (−90.85±99.29.3 pg/ml vs. 50.25±140.52 pg/ml; P=0.000; −12.08±12.1 pg/ml vs. 10.3±13.4 pg/ml; P=0.000; and −130.5±106.3 pg/ml vs. -17.1±71.7 pg/ml; P=0,000). We also observed significance decrease in total cholesterol, LDL, and HbA1c (−12.52±37.31 mg/dl vs. 1.36±26.25 mg/dl; P=0.05; −18.29±28.6 mg/dl vs. 1.8±18.5 mg/dl; P=0.003; −0.29.±1.1 vs. 0.25±0.78; P=0.012; respectively) when compared to placebo group. There was no difference in HDL, triglycerides, and fasting blood glucose. CEC also significantly reduced with increasing of EPC in study group (p=0.000).

Conclusion: The results show that Garcinia mangostana extract has an efficacy to reduce inflammation (IL-1, IL-6, MDA and HsCRP), lipid profile, CEC and increase EPC level that reflects an improvement of endothelial function.

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