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Enhancement of high-density lipoproteins quantity and quality to treat dyslipidemia and hypertension by policosanol

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Metabolic syndrome is closely associated with higher risk of hypertension, cardiovascular disease, diabetes and stroke. It has been reported that Cuban policosanol improves lipid parameters and HDL functionality in human participants. The aim of the present study was to investigate the long-term effects of policosanol supplementation on blood pressure (BP) and the lipid profile in healthy Korean participants with pre-hypertension. This randomized, double-blinded, and placebo-controlled trial included 84 healthy participants who were randomly assigned to three groups receiving 10 mg of policosanol, 20 mg of policosanol, or placebo upto 24 weeks. The BP, lipid profile, and anthropometric factors were measured pre- and post-intervention and then compared. Based on an average of three measurements of brachial BP, the policosanol 20 mg group showed the most significant reduction in average systolic BP (SBP) from 138±12 mmHg at week 0 to 126±13 mmHg at week 24 ($p<0.0001$). The policosanol 10 mg group showed a 4% reduction in SBP from 135 mmHg at week 0 to 128 mmHg at week 24 ($p=0.016$), whereas the placebo group showed no change in BP between weeks 0 and 24. The policosanol consumption for 12 weeks, the policosanol 20 mg group exhibited the most significant reduction of BP, up to 7.7% reduction of average systolic BP (SBP) from 136.3±6.1 mmHg (week 0) to 125.8±8.7 mmHg ($p<.001$). Between group comparisons using repeated measures ANOVA analysis showed that the policosanol 20 mg group had a significant reduction of SBP ($p=.020$) and a reduction of DBP ($p=.035$). The policosanol 10 mg and 20 mg groups showed significant reductions in aortic SBP of 7.4% and 8.3%, respectively. The policosanol groups showed significant reductions of total cholesterol (TC) of 9.6% and 8.6% for 10 mg and 20 mg of policosanol, respectively. Lipoprotein functionality improved by policosanol to be more anti-atherogenic; LDL showed more anti-oxidant while HDL showed more anti-glycation properties In conclusion, consumption of policosanol resulted in significant reductions of peripheral SBP and DBP, aortic SBP and DBP, and mean arterial pressure (MAP) and serum TC and LDL-C with elevation of %HDL-C.

Key words: Policosanol, blood pressure, high-density lipoproteins, low-density lipoproteins.