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Antihypertensive and cardioprotective effects of pumpkin seed oil.

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Abstract

Pumpkin seed oil is a natural product commonly used in folk medicine for treatment of prostatic hypertrophy. In the present study, the effects of treatment with pumpkin seed oil on hypertension induced by the nitric oxide synthase inhibitor N(ω)-nitro-L-arginine methyl ester hydrochloride (L-NAME) (50 mg /kg/day) in rats were studied and compared with those of the calcium channel blocker amlodipine. Pumpkin seed oil (40 or 100 mg/kg), amlodipine (0.9 mg/kg), or vehicle (control) was given once daily orally for 6 weeks. Arterial blood pressure (BP), heart rate, electrocardiogram (ECG) changes, levels of serum nitric oxide (NO) (the concentrations of nitrite/nitrate), plasma malondialdehyde (MDA), blood glutathione, and erythrocytic superoxide dismutase activity were measured. Histopathological examination of heart and aorta was conducted as well. L-NAME administration resulted in a significant increase in BP starting from the second week. Pumpkin seed oil or amlodipine treatment significantly reduced the elevation in BP by L-NAME and normalized the L-NAME-induced ECG changes-namely, prolongation of the RR interval, increased P wave duration, and ST elevation. Both treatments significantly decreased the elevated levels of MDA and reversed the decreased levels of NO metabolites to near normal values compared with the L-NAME-treated group. Amlodipine also significantly increased blood glutathione content compared with normal (but not L-NAME-treated) rats. Pumpkin seed oil as well as amlodipine treatment protected against pathological alterations in heart and aorta induced by L-NAME. In conclusion, this study has shown that pumpkin seed oil exhibits an antihypertensive and cardioprotective effects through a mechanism that may involve generation of NO.

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