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Antihypertensive Effect of Formulated Apium graveolens: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial

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Abstract : High blood pressure is one of the most important and serious health-threatening because of no symptoms in most people, which can lead to sudden heart attack, heart failure, and stroke. Nowadays, herbal medicine is one of the best and safest strategies for treatment that have no adverse effects. Apium graveolens (celery) can be used as an alternative treatment for many health conditions such as hypertension. Natural compounds reduce blood pressure via different mechanisms in which Apium graveolens extract provides potent calcium channel blocking properties. A randomized, double-blind, placebo-controlled, cross-over clinical trial was done to evaluate the efficacy of formulated Apium graveolens extract with a maximum yield of 3-n-butylphthalide to reduce systolic and diastolic blood pressure in patients with hypertension. 54 hypertensive patients in the range of 20-68 years old were randomly assigned to the treatment group (26 cases) and the placebo control group (26 cases) and were crossed over after washout duration. The treatment group received at least 2 grams of formulated powder in hard capsules orally, before each meal, 2 times daily. The control group received 2 grams of placebo in hard capsules orally, exactly as the same as shape, time, and doses of treatment group. Treatment was administrated in 12 weeks with 4 weeks washout period at the middle of the study, meaning 4 weeks drug consumption for the treatment group, 4 weeks washout and 4 weeks placebo consumption, and vice versa for the placebo control group. The clinical assessment was done 4 times, including at the beginning and ending of the drug and placebo consumption period by 24-hour ambulatory blood pressure monitoring (ABPM) holter, which measured blood pressure every 15 minutes continuously. There was a statistically significant decrease in both systolic blood pressure (SBP) and diastolic blood pressure (DBP) at the end of drug duration compared to baseline. The changes after 4 weeks on average was about 12.34 mm Hg for the SBP ($P < 0.005$) and 7.83 mm Hg for the DBP ($P < 0.005$). The results from this clinical trial study showed this Apium graveolens extract formulation in the mentioned dosage had a significant effect on blood pressure-lowering for hypertensive patients.

Keywords : Apium graveolens extract, clinical trial, cross-over, hypertension
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