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Poster Presentation

Prescribing Pepper for Stroke Treatment

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Abstract

Introduction: Black pepper (Piper nigrum L.) is one of the medicinal plants being used to prevent and manage stroke in Persian Medicine. Current findings support its anti-inflammatory, radical scavenging and neuroprotective characteristics. In this study, we aimed to evaluate role of black pepper on functional and histopathological outcomes of stroke in an animal model of MCAO. **Materials and Methods:** Black pepper powder was extracted using hydro-alcoholic solvent and drying by rotary evaporated apparatus. Black pepper suspension was then produced by suspending the powder in distilled water. Stroke was modeled by 70-80 min intraluminal filament occlusion of right middle cerebral artery in two groups of male adult Wister rats weighing 300-350 g (n:5 each group). The suspension was gavaged to one of the groups twice a day to a total dose of 200 mg (of the dry extract)/kg/d. After about 24 h, animals were tested using neurological severity and object recognition tests. Then brains were extracted and infarct volume, as well as edema, were evaluated using Triphenyl Tetrazolium Chloride staining. **Results:** Infarct volume showed significantly smaller amounts (260.8 +/- 99.28 mm^3) in pepper-treated group compared to control group (MCAO without treatment) (506.6 +/- 84.27 mm^3; $p<0.05$). Edema was also significantly less in pepper treated (51.8 +/- 29.89 mm^3) versus control group (145.7 +/- 26.40 mm^3; $p<0.05$). We didn't measure significant difference in Neurological Severity Scores and object recognition indices between two groups. **Conclusion:** Black pepper as an anti-inflammatory, antioxidant and neuroprotective plant could be considered a helpful adjuvant treatment in stroke, protecting brain from expansion of infarct size and increasing edema. Lack of significant influence on rat function by pepper might be due to the small size of the groups and limited time of follow-up after stroke. Further research with larger animal groups and longer durations of treatment is suggested.

Keywords: Stroke, Anti-inflammatory, Pepper, Antioxidant, MCAO

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