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Meeting Abstract

The effect of Pomegranate (Punica Granatum L.) juice on cerebral vasospasm in the rabbit subarachnoid hemorrhage model

- **Yahya Guvenc** - Dr.N.K. Sincan State Hospital, Department of Neurosurgery, Sincan, Ankara,Turkey
- **Ersin Ozeren** - Aksaray State Hospital, Department of Neurosurgery, Aksaray, Turkey
- **Deniz Billur** - Ankara Universty, Faculty of Medicine, Department of Histology-Embryology, Ankara, Turkey
- **Adnan Demirci** - Yalova Hospital, Department of Neurosurgery, Yalova, Turkey
- **Sevim Aydin** - Ankara Universty, Faculty of Medicine, Department of Histology-Embryology, Ankara, Turkey
- **Alper Dilli** - Diskapi Y.B. Traning and Education Hospital, Department of Radiology, Ankara,Turkey

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Text

Objective: Cerebral ischemia, occurring because of cerebral vasospasm after SAH is one of the major causes of morbidity and mortality. Pomegranate (Punica Granatum L. which has got antioxidant, anti-inflammatory, anti-cancer, anti-genotoxic activity, is a kind of fruit). This study aimed to investigate the effect of Pomegranate juice, on rabbit basillary artery in experimental subarachnoid hemorrhage (SAH) model.

Method: Eighteen adult male New Zealand white rabbits were randomly divided into three groups as a control group (n=6), a SAH only group (n=6), and SAH+treatment group (n=6). All subjects viewed primarily by cerebral magnetic resonance angiography. Experimental SAH was made by the injection of autologous arterial blood into the cisterna magna. In the treatment group, the subjects were given pomegranate juice for four days after the SAH. First dose of pomegranate juice was given after two hours after SAH. A daily dose of 30 ml/kg pomegranate juice was given through the gastric gavage. SAH group and SAH+treatment group viewed again by cerebral magnetic resonance angiography after 96 hours. Then all of the animals were sacrificed and the brains were totally removed together with the cerebellum and brain stem. Measurement of wall thickness of basillary artery and lumen area was done under light microscope.

Results: The results showed that the mean luminal area of the treatment group was greater than the SAH only group and the arterial wall thickness of treatment group was lesser than the SAH group. The mean luminal area and arterial wall thickness values for the treatment group were found to be increased between the control group and the SAH only group and these differences were statistically significant ($p < 0,005$).

Conclusions: Our study, for the first time, showed that pomegranate can prevent vasospasm induced by SAH in the animal model. These results demonstrate that patient dietary supplementation with pomegranate juice may be useful for this disease. However, further studies are needed.