Ophthalmic Artery Vasospasm

The pterygopalatine ganglion (PPG) and ophthalmic artery (OpAs) have important roles in ocular autoregulation and retinal and visual functions. The relationship between PPG neuron density, OpA vasospasm, and retinal detachment in subarachnoid hemorrhage (SAH) has studied by Findik et al.

This study was conducted on 25 rabbits. Five animals were in the control group (GI; n = 5), five in the sham group (GII; n = 5), and 15 in the study group (GIII; n = 15). After injection of 1 cc saline into the cisterna magna in the sham group, and autologous blood in the SAH group, the animals were followed for 3 weeks. All animals underwent a retinal examination five times a week for 3 weeks before and after the experiment. After the experiment, the neuron density of PPGs of the facial nerves, vasospasm index (VSI) of OpAs, and total basal surface values of the detached retinal parts (DRPs) were calculated.

In the funduscopy, intravitreous hemorrhage (Terson's syndrome) was detected in four animals in the SAH group. In the control groups, neuron density was 12,000 ± 1,240/mm3, VSI = 0.345 ± 0.076, and DRP = 0 to 1.5 mm2. Mean neuron density was 9,450 ± 940/mm3, VSI = 1.645 ± 0.940, and DRP = 6.23 ± 1.61 mm2 in the sham group ($p < 0.05$). Neuron density was 6,890 ± 932/mm3, VSI = 2.92 ± 0.97, and DRP = 9.43 ± 2.54 mm2 in SAH group.

Mean neuron density, VSI of OpAs, and DRP values differed statistically significant between the SAH group and other groups ($p < 0.005$). There is an inverse relationship between PPG neurons and DRP. However, a direct relationship was observed between the mean VSI and DRP values. [1)].

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