



Expression of aquaporin-4 in human supratentorial meningiomas with peritumoral brain edema and correlation of VEGF with edema formation

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ABSTRACT. Peritumoral brain edema is a common complication of meningiomas. It is believed that vascular endothelial growth factor (VEGF), as an angiogenic factor, plays a vital role in edema formation. Aquaporin-4 (AQP4) is a small integral membrane protein that regulates water in the normal brain. However, the expression of AQP4 and its relationship to VEGF in edematous meningiomas are not well known. We studied tumor specimens of 59 human supratentorial meningiomas. Western blot analysis was used to detect the expression of AQP4, and double-labeling immunofluorescence histochemical staining was performed to determine the relationship between AQP4 and VEGF. The AQP4 expression was significantly higher in the edema group, in which the protein level was correlated

with the extent of edema. Greater VEGF expression was also observed in the edema group, and a relationship between AQP4 and VEGF was found. We conclude that AQP4 is involved in peritumoral brain edema formation in meningiomas and is also closely related to the expression of VEGF.

Key words: Meningiomas; Peritumoral brain edema; Aquaporin-4; Vascular endothelial growth factor