



## Role of inflammatory responses in the pathogenesis of human cerebral aneurysm

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**ABSTRACT.** We aimed to detect expressional profiles of intracellular cell adhesion molecule-1 (ICAM-1), nuclear factor-kappa B (NF- $\kappa$ B), and monocyte chemoattractant protein-1 (MCP-1) in human cerebral aneurysm, in order to investigate the effect of chronic inflammation on the pathogenesis of cerebral aneurysm. Samples from 40 cases of human cerebral aneurysms diagnosed at our hospital were selected along with 20 normal cerebral artery samples. Western blotting and immunohistochemical (IHC) staining were used to reveal expressional profiles of ICAM-1 and NF- $\kappa$ B in the aneurysmal wall of patients and normal cerebral artery tissues. Reverse transcription (RT)-PCR was employed to detect changes in transcript levels of MCP-1 mRNA. Western blotting showed significantly higher expressions of ICAM-1 and NF- $\kappa$ B in patients with cerebral aneurysm compared to the normal group ( $P < 0.01$ ), which was consistent with IHC staining results. RT-PCR revealed significantly higher MCP-1 transcripts in cerebral

aneurysm tissues compared to the normal group ( $P < 0.01$ ), in addition to a positive relationship between ICAM-1 and NF- $\kappa$ B expression levels. In conclusion, expression levels of ICAM-1, NF- $\kappa$ B, and MCP-1 in patients are significantly elevated, suggesting an enhanced chronic inflammatory response and a significant correlation between inflammatory factors/adhesion molecules and the pathogenesis of cerebral aneurysm.

**Key words:** Cerebral aneurysm; Inflammatory response; ICAM-1; NF- $\kappa$ B; MCP-1