AJNR

Regarding ''Differences in Hemodynamics and Rupture Rate of Aneurysms at the Bifurcation of the Basilar and Internal Carotid Arteries''

W. Li and Y. Wang

AJNR Am J Neuroradiol 2017, 38 (8) E51
doi: https://doi.org/10.3174/ajnr.A5224
http://www.ajnr.org/content/38/8/E51

Regarding "Differences in Hemodynamics and Rupture Rate of Aneurysms at the Bifurcation of the Basilar and Internal Carotid Arteries"

With great interest and appreciation, we have read the article by Doddasomayajula et al[1] entitled "Differences in Hemodynamics and Rupture Rate of Aneurysms at the Bifurcation of the Basilar and Internal Carotid Arteries." They analyzed the differences in hemodynamics at the bifurcation of the basilar and internal carotid arteries to explain why posterior circulation aneurysms have a higher rupture risk than those in the anterior circulation, and they found that higher-flow conditions in basilar tip aneurysms could explain their high rupture risk compared with internal carotid bifurcation aneurysms.

In their article, the typical inlet flow boundary conditions were used for all models. However, the inlet flow boundary conditions of the basilar artery (the posterior circulation) and internal carotid artery (the anterior circulation) could be an obvious difference for the diameter and flow of the inlet artery. Such settings with the same inlet flow boundary conditions of the basilar and internal carotid arteries may disrupt the hemodynamic results markedly in this study, and the conclusions might involve significant bias without considering this factor. To avoid such biases, mirror aneurysms may be an ideal within-patient disease model to provide an internal control for the analysis of possible factors linked to aneurysm rupture.[2,3] Moreover, patient-specific inflow boundary conditions may avoid biases in the calculation of hemodynamics when using the computational fluid dynamics techniques.[4]

The authors should be commended for their meticulous in-study design using state-of-the-art methodology. We look forward to future research and discussion.

http://dx.doi.org/10.3174/ajnr.A5224

REFERENCES

1. Doddasomayajula R, Chung B, Hamzei-Sichani F, et al. **Differences in hemodynamics and rupture rate of aneurysms at the bifurcation of the basilar and internal carotid arteries.** *AJNR Am J Neuroradiol* 2017; 38:570–76 CrossRef Medline
2. Tian Z, Zhang Y, Jing L, et al. **Rupture risk assessment for mirror aneurysms with different outcomes in the same patient.** *Front Neurol* 2016;7:219 CrossRef Medline
3. Fan J, Wang Y, Liu J, et al. **Morphological-hemodynamic characteristics of intracranial bifurcation mirror aneurysms.** *World Neurosurg* 2015;84:114–20.e2 CrossRef Medline
4. Jansen IG, Schneiders JJ, Potters WV, et al. **Generalized versus patient-specific inflow boundary conditions in computational fluid dynamics simulations of cerebral aneurysmal hemodynamics.** *AJNR Am J Neuroradiol* 2014;35:1543–48 CrossRef Medline

W. Li
Y. Wang
Department of Neurosurgery
The First Affiliated Hospital of Nanchang University
Nanchang University
Nanchang, China