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Difference in Hemodynamic Parameters Between Cerebral Aneurysms Models with Truncated Parent Arteries and with Parent Arteries Extending to the Carotid Siphon YUYA UCHIYAMA, Tokyo University of Science, HIROYUKI TAKAO, The Jikei University of Medicine, SOICHIRO FUJIMURA, HIROSHI OHNO, Tokyo University of Science, FELICITAS DETMER, SARA HADAD, SETAREH SALIMI, FERNANDO MUT, George Mason University, KOJI FUKUDOME, Tokyo University of Science, JUAN CEBRAL, George Mason University, YUICHI MURAYAMA, The Jikei University of Medicine, MAKOTO YAMAMOTO, Tokyo University of Science — Recently, CFD simulations are used to study cerebral aneurysm pathologies. In the human anterior circulation, the internal carotid artery (ICA) has a particular bent section called carotid siphon. However, vessels distal and proximal of aneurysms are often truncated to perform simulations although they can have an effect on blood flow behavior. In this study, we compared hemodynamic parameters in models with and without the siphon. We selected 21 aneurysms located in distal ICA. For each case, we created a model with the siphon (longer model) and another without it (shorter model). We performed pulsatile blood flow simulation in all the cases, and then calculated and compared 20 typical aneurysm hemodynamic parameters in each model. Results showed that some hemodynamic parameters were different between the two models. Particularly, WSS was on average 60.6% smaller in shorter models compared to longer models. In conclusion, the inclusion of the carotid siphon to the model is important to represent the hemodynamic environment within the aneurysm.

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