

The Significant Role of Hemodynamics in the Progress of Cerebral Aneurysm Disease

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Abstract

Cerebral or Intracranial aneurysms (IA) still represent a frightening and devastating silent threat, not only because they often remain asymptomatic until rupture but also because of their association with high prevalence of morbidity and mortality rates. It is well accepted by the scientific community that the mechanisms behind their initiation, growth and rupture are still unclear. However, hemodynamic factors, especially those related to the vessel wall, are considered important to a better understanding of this pathophysiology. Moreover, it is known that biochemical and histological factors also play a decisive role.

In this talk we present patient-specific hemodynamic studies of IA, using image-based CFD simulations and correlating wall shear stress (WSS) and several non-dimensional hemodynamic parameters to risk of growth and rupture of cerebral aneurysms.

This work was done in collaboration with I. Velho and J. Tiago.

References

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