Special Issue

Advances in Computational Modelling of Abdominal Aortic Aneurysm

Message from the Guest Editors

This Special Issue “Advances in Computational Modelling of Abdominal Aortic Aneurysm” will focus on the computational methods used to study the hemodynamic and biomechanical variables that develop inside AAAs and identify possible correlations with the risk of rupture. The maximum diameter criterion that is currently used as the main determinant of rupture and, therefore, the need for intervention, was proven to be inadequate for accurate rupture risk prediction at a patient-specific level. Numerical simulations can provide an insight into the physiology and pathophysiology of these lesions and possibly assist in the delineation of their natural history. The individualized characteristics of AAAs may further define the risk of rupture beyond the universal maximum diameter criterion. Moreover, the treatment of AAAs with open surgical or endovascular techniques may present a variable hemodynamic performance with various configurations, each one presenting specific advantages and disadvantages. Computational modelling can be employed to study these treatment modalities to provide insight into their comparative efficacy and, in this regard, guide clinical practice.

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