Computational fluid dynamics study of the aortic valve opening on hemodynamics characteristics

ABSTRACT

In this work, the 3D geometry of patient specific aorta was utilized to carry out CFD studies on the effect of different valve opening (45°,62.5° and fully opening) on the hemodynamic properties. The result shows that the lower valve opening induced jet flow and hampered the flow on the additional carotid arteries. Besides, the leaflets were subjected to extreme stress values having disastrous consequences. Consequently, stenosis which is characterized by weaker leaflets and low valve openings has serious impact on the well being of humans.

Keyword: Blood vessels; Computational fluid dynamics; Flow; Haemodynamics