STUDY OF CEREBRAL BLOOD FLOW BY THE LUMPED PARAMETER MODEL TO PREDICT THE RUPTURE OF THE ARTERIAL WALL: APPLICATION TO STROKE

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ABSTRACT

The main purpose of this work is to control the evolution of lipid deposition size wall in order to prevent wall rupture, obstruction of cardiovascular circulation as well as the asphyxia of certain body members. The model of blood flow in the cerebral artery is described, using the lumped parameter method and taking into account the hematocrit and stenosis. The obtain model allows to understand non-invasively of the cardiovascular functionality and should deal with improve the blood circulation in the cerebral artery. Principal results in this paper showed that when the size of stenosis increases, the volume of hematocrit decreases. Also the radial growth of the stenosis is more critical than longitudinal growth and this radial growth reached faster rupture than the longitudinal. Finally, all the present results are in good agreement with the expected results of the literature.