Abstract

Atherosclerosis is a disease caused due to formation of plaque into the artery. Increase in plaque affects the wall shear stress. The present study is performed to calculate wall shear stress in different geometries of stenosed carotid artery.

A 2D model of different geometries is generated using CFD for Non-Newtonian model. After this WSS of different geometries of stenosed arteries is calculated and compared. Wall Shear Stress (WSS) of carotid arteries with smooth plaque, irregular plaque, cosine plaque and artery with blood clot is calculated.

It is found that with increase of plaque in common carotid artery WSS increases. Irregular plaque causes highest WSS. Wall Shear Stress of opposite walls of carotid artery is compared where one wall is having blood clot into it and other one is healthy.


**Index Terms**

Computer Science  
Biomedical

**Keywords**

Bifurcation, Stenosis, Ansys, Plaque, Atherosclerosis, Clot