AN INNOVATIVE SOLUTION FOR THE PROBLEM OF BLOOD FLOW THROUGH STENOSED ARTERY USING GENERALIZED BINGHAM PLASTIC FLUID MODEL

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ABSTRACT

This mathematical model has been presented to study the effect of a stenosis shape on arterial blood flow characteristics with the representation of blood by Bingham plastic fluid model. The governing equations of proposed model are solved and closed form expressions for the blood flow characteristics, namely dimensionless resistance to flow, flow rate and wall shear stress are derived. It has been found that the wall shear stress and resistance to flow increase with increasing tube radius for constant value of the stenosis height, while decreases as stenosis shape parameter increases.

KEYWORDS: Blood Flow, Bingham Plastic Fluid, Resistance to Flow, Wall Shear Stress, Stenosis Shape Parameter