Blood Flow through a Stenosed Artery with the Effect of Transverse Magnetic Field using a Non-Newtonian Model

Abstract

One-dimensional, steady, Herschel-Bulkley fluid flow of blood through a stenosed artery under the effect of external magnetic field is studied. The blood is assumed as incompressible. The governing equations are solved analytically. This model has been used to study the influence of yield stress on blood flow through the stenosed artery. The effects of magnetic field on axial velocity, flow rate and wall shear rate has been shown graphically. The effects of all the parameters are quite significant on axial velocity, flow rate and wall shear rate as evidence from the results.

References

- Lee, J. S., 1974 On the coupling and detection of motion between an artery with a
localised lesion and its surrounding tissue. J. Biomech. , 7 pp. 403-409.

**Index Terms**

Computer Science  
Applied Mathematics

**Keywords**

Stenosis  
yield stress  
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