Mathematical Model on Two-phase Arterial Blood Flow of Human Hepatic Circulatory Sub-system with Special Reference to Malaria

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A B S T R A C T

In this paper, two-phase blood flow is considered in arteries during malaria. In which first phase is of blood plasma and the second is that of red blood cells. Keeping in view the nature hepatic circulatory subsystem in the human body. All formulation has been done in tensorial form. Non-Newtonian Power law model has been applied according to the stress and strain rate of arteries. The solution technique adapted is analytical as well as numerical. A graphical study of blood pressure drop versus haemoglobin has been studied through a collection of clinical data for blood pressure and haemoglobin. The role of hematocrit in the determination of blood pressure drop is explicit.

Keywords: Hematocrit, Blood Non-Newtonian haemoglobin, non-Newtonian power law model for artery, Stress, Strain rate.