

1014-92-593

**J C Misra\*** ([jcm@maths.iitkgp.ernet.in](mailto:jcm@maths.iitkgp.ernet.in)), Department of Mathematics, Indian Institute of Technology, Kharagpur, 721302 KHARAGPUR, W.B, India. *Mathematical Modelling of the Hemodynamical Flow of Blood.*

As blood is a rheologically complex fluid and it is a suspension of particles in plasma, the independent motion of blood cells also play a significant role in the detection of anomalies in blood flow. An attempt will be made to give an overview of different mathematical models considered in different investigations dealing with mathematical modeling of blood flow in stenosed arteries. Particular emphasis will be paid to find an answer to the question whether the viscoelasticity of blood and that of the wall tissues (as observed experimentally by previous investigators) bear the potential to influence significantly the flow picture in the vicinity of a stenosis developed in an artery. With this in view, it is proposed to present an analytical study on the behaviour of blood flow through an arterial segment having a stenosis, by treating the artery as a thin-walled initially stressed orthotropic nonlinear viscoelastic cylindrical tube filled with a non-Newtonian fluid representing blood, basing upon a recent study by the present author. The non-Newtonian property of blood which is predominant in the downstream side of a stenosis (as per experimental observation ) will also be adequately addressed. (Received September 21, 2005)