

MODELING OF BLOOD FLOW IN A STENOSED ARTERY FOR DIFFERENT BLOOD DISEASES

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Abstract

Effect of blood cells has been studied in the present model on the flow system when the tube (blood vessel) gets constricted due to cholesterol deposition. The flow properties such as velocity, shear stress and resistance to flow have been analysed by assuming blood as a polar fluid [1] and deriving all the flow parameters by accounting suitable initial and boundary conditions. Also, non-dimensional approach has been adapted to all the flow variables. Since the intention of the present model is to study the effect of flow for different blood diseases. The model will be analyzed for the blood diseases such as polythemia, plasma cell Dyserasis, sickle cell (Hb ss) and will be compared with normal blood. The relevant data for the computational purpose will be taken from the published experimental data [2]. The presentation will be restricted up to the development of the model and derivation of all the flow parameters. An effort will be made to quantify the present findings qualitative way. Since model accounts additional realistic parameters based on experimental observations [2] we feel that present findings will be more refined and throw some insight into the modeling approach.