A Mathematical Modelling of Two-phase Coronary Blood Flow in Arterioles with Special Reference to Silent Ischemia

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ABSTRACT

Present paper envisions a model of two phased coronary blood flow in arterioles relevant to silent ischemia. Through arterioles the coronary circulation be made of the blood vessels that supply blood to the heart muscle to remove it. The blood enters coronary arterioles from coronary artery. We have implemented the Herschel Bulkley non-Newtonian model in bio-fluid mechanical setup. We have accumulated pathological data in case of silent ischemia for the graphical study of blood pressure drop v/s hematocrit. Including everything the presentation is in tensorial form and solution techniques adopted is analytical as well as numerical.

Keywords: Silent ischemia, coronary blood flow, hematocrit, Herschel Bulkley, non-Newtonian model.

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