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1976 #8a

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1st = 031 Title Microcirculation

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PULSATILITY OF MICROVASCULAR BLOOD VELOCITY. H.N. Mayrovitz*, R.T. Tuma,* and M.P. Wiedeman, Dept. of Physiology, Temple University School of Medicine, Phila., Pa. 19140

Red blood cell velocity has been measured in the microvasculature of the unanesthetized mammal, (little brown bat) to determine the magnitude of pulsatile effects produced by the heart. Velocity measurements were made in wing vessels belonging to five different branching orders (diameter ranges; 42-71, 18-64, 14-17, 5-7, and 3.2-6 microns) using a modification of the dual slit method and crosscorrelating the resultant photoptic signals. To evaluate the extent of damping of the pulsatile component, the data were analyzed in terms of the ratio (γ) equal to the pulsatile velocity component to the average velocity at each branching order. The results show a trend for selective damping of the pulsatile component as evidenced by a decrease in γ with increasing branching order. A tendency for the damping to increase with heart rate was also found. In spite of the damping however, γ values as large as 0.3 are found in third and fourth order vessels. The finding of pulsatile component synchronous with the heart rate of this magnitude within the terminal branches of the microvasculature implies that microcirculatory analyses and data interpretation (e.g. shear stress, flow dynamics, vasomotion) in which blood velocity plays an essential role, must include the effect and significance of such pulsatility.
(Supported in part by SCOR Thrombosis Grant #HL 14217).

PRESENTATION PREFERENCE

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