ASA given iv had the same effect on mesentery as ASA given ip. The data suggest that aggregation is accompanied by production of a constrictor in both microvascular beds, and of a dilator at least in the pia. Interference by ASA with either the production or the action of the constrictor would lessen constriction in the mesentery but enhance the effect of the dilator. (Supported in part by HL-18932.)

65. *A Comparison of Blood Flow in the Cremaster Muscle Microvasculature of Hypertensive and Normal Rats.* JOHN W. ROY AND HARVEY N. MAYROVITZ, Miami Heart Institute, Miami Beach, Florida 33140.

Vascular adaptations associated with the maintenance of hypertension in the spontaneously hypertensive rat (SHR) are not fully resolved. In this study blood flow and its distribution in the SHR cremaster muscle microvasculature has been determined to further clarify this issue. Blood velocity (V_{rbc}) and vessel diameters were measured in two groups of age (7 weeks) and weight (105–120 g) matched SHR and normotensive (WKY) rats ($n = 8$) using an open cremaster muscle preparation. V_{rbc} (dual-slit method) was converted to volumetric flow by calculation. Total bed flow was obtained by summing all arterial inflows. Flow distribution was obtained from measurements in the first observable branch in each of 5 consecutive branching orders. The results reveal the following hemodynamic characteristics of the SHR as compared with their WKY controls: (1) total flow is less by 24% ($P < .05$); (2) flow in corresponding branching orders (first to fourth) is less by 55 to 59% ($P < .05$). Differences at the fifth order are N.S.; (3) in spite of these reduced levels, the flow entering each successive branching order is a constant fraction (20%) of its parent flow for both groups. This latter finding is in conflict with the concept of a reduced number of arterioles. Blood flow differences are likely due to the smaller diameter of the SHR 1st order artery, the only vessel with a significant size difference from its WKY counterpart ($P < .01$). Since TPR is only marginally elevated in SHR's of this age the decrease in 1st order artery diameter may be the initial adaptation in response to high cardiac output.

66. *Studies of Lung Protein Flux and Water Content in ANTU-Induced Pulmonary Edema.* G. RUTILI, P., KVIETYS, J. C. PARKER, A. E. TAYLOR, University of South Alabama College of Medicine, Department of Physiology, Mobile, Alabama 36688.

The lymphatic protein flux and water content in dog lungs was characterized following iv injection of ANTU (α-naphtylthiourea). The following parameters were recorded; arterial pressure (MAP), pulmonary artery pressure (PA), left atrial pressure (LAP), lung lymph flow (Jv), plasma and lymph protein concentration ratio (L/P), hematocrit (Hct). The permeability changes of the lung microvasculature were determined by investigating the effect on lymph flow and L/P produced by the same elevation in LAP (10–12 mm Hg above normal level) before and 3 hr after the ANTU. The water content of lung tissue (expressed as the amount of extravascular water/blood free dry weight) was determined at normal conditions, 3 hr after ANTU and following the subsequent increase in LAP. Findings: The pre-ANTU increase in LAP produced an increase in lymph flow (two to four times) and a concomitant decrease in L/P. During the 3 hr following the ANTU there was a slow gradual increase in Jv and Hct but very small or no changes in either L/P or other vascular parameters. The water content of lung was 5.90 ± 0.48 as compared to 3.85 ± 0.35 in untreated controls. Following the second increase in LAP there was a substantial increase in the lymph flow while the L/P did not show any significant change. The water content of the lung increased to 6.85 ± 0.65. The apparent reflection coefficient of total plasma proteins (estimated by 1-L/P) changed from a value of 0.65–0.7 before ANTU to a value of 0.35–0.4 after the ANTU, thus indicating a substantial increase in vascular permeability of the lung. Supported by Parker B. Francis Fund.

67. *Age-Related Changes in Capillary Hematocrit and Associated Microvascular Variables.* I. H. SARELIUS, D. N. DAMON, AND B. R. DULING, Department of Physiology, University of Virginia School of Medicine, Charlottesville, Virginia 22908

It is known that capillary density decreases as young animals mature and that this change is associated with changes in muscle fiber type (Sillau & Banchero, 1977, *Pflügers Arch.* 370, 227). Other microcirculatory variables associated with capillary red cell dynamics might also change with age. We therefore examined capillary density and red cell dynamics in cremaster muscles of young and adult hamsters (mean ages 35 and 132 days). The microcirculation was visualized as described elsewhere