

In contrast to the results obtained by occlusion plethysmography, it was found that intra-arterial infusions produced sustained increases in blood flow similar to intravenous infusions. The sustained dilatation of muscle vessels during intravenous infusion of epinephrine cannot be attributed entirely to secondary neural or humoral influences. However, it is not yet known to what extent these influences may be involved in addition to the local epinephrine effect. (Golenhofen, K.: *Sustained Dilatation in Human Muscle Blood Vessels under the Influence of Adrenaline*, *J. Physiol.* 160: 189 (Feb.) 1962.)

FOREARM BLOOD FLOW Forearm blood flow and forearm oxygen consumption with the extremity dependant were not significantly different from that with the extremity horizontal. Elevation of the forearm caused a significant decrease in blood flow and oxygen uptake. Forearm skin temperature did not vary with position of the extremity. These results suggest that variations in position of the upper extremity cause compensatory vascular reflexes. (Abramson, D. I., and others: *Effect of Altering Limb Position on Blood Flow, Oxygen Uptake, and Skin Temperature*, *J. Appl. Physiol.* 17: 191 (Mar.) 1962.)

RENAL BLOOD FLOW Pressure-flow relationships during reductions in renal artery pressure were studied in the dog kidney using a noncannulating electromagnetic flowmeter. When renal artery pressure was reduced by partial occlusion regulation was complete and flow was maintained at control levels at intravascular pressures above 70 mm. of mercury. Regulation was less complete from 50-70 mm. of mercury and absent below 50 mm. of mercury. Insignificant regulation of flow was found in the iliac bed using an identical experimental technique. These findings suggest the presence of an active, autoregulatory mechanism controlled by a sensitive feedback system for maintenance of renal blood flow. (Schmid, H. E., and Spencer, M. P.: *Characteristics of Pressure-Flow Regulation by the Kidney*, *J. Appl. Physiol.* 17: 201 (Mar.) 1962.)

INTRAOCULAR TENSION Pressures in the brachial artery, the retinal artery and intraocular pressure were measured when hypotension was induced by trimetaphan (Arfonad). Arterial pressure was lowered to about 45 mm. of mercury. A good correlation of respective pressures was found. Permanent retinal damage due to hypotension does not occur unless there is external pressure on the eyeball. Thrombosis of the central retinal artery after induced hypotension is due to severe changes in the wall of vessels. In order to avoid retinal damage, an abundant supply of oxygen should be provided. Blood pressure should not be dropped too rapidly and pressure on the eyeball should be avoided. Induced hypotension should not be used in patients showing vascular sclerosis. (Haimboeck, K., and Steinber-eithner, K.: *Pressure in the Retinal Artery and Intraocular Tension During Induced Hypotension*, *Der Anaesthetist* 11: 99 (Mar.) 1962.)

BLOOD PRESSURE CUFF A blood pressure cuff adjustable in width to 40 per cent of the arm circumference effectively eliminates the errors in measurement of blood pressure which are correlated to variations in arm size. Certain obese individuals, who are hypertensive by standard cuff measurements, will have normal readings with this cuff. Low readings of asthenic subjects may also be brought to or nearer normal ranges. (Dasberg, H., Blondheim, S. H., and Sadovsky, E.: *An Adjustable Blood Pressure Cuff to Correct Errors Due to Variations in Arm Circumference*, *Brit. Heart J.* 24: 214 (Mar.) 1962.)

BLOOD PRESSURE RECORDER In order to study blood pressure variations over relatively long periods of time under conditions of normal daily activity, a portable blood pressure recorder has been devised which weighs only five and one half pounds. It consists of a standard blood pressure cuff and bulb, a button microphone, an F-M pressure transducer with appropriate electronic adjuncts, a tape recorder and a twin-light signal system. The cuff and microphone are taped to the upper arm and the other equipment is contained beneath the shoulders in two holsters. An incidental finding was a con-

sistently higher blood pressure (as much as 15 mm. of mercury) in the right arm as compared to the left in these subjects. Prolonged recording of blood pressures was carried out in three subjects who wore the apparatus up to eleven hours without unusual discomfort. Wide variations of blood pressure were encountered in these individuals throughout the day, related to changing emotional and physical stresses. (Hinman, A. T., Engel, B. T., and Bickford, A. F.: *Portable Blood Pressure Recorder Accuracy and Preliminary Use in Evaluating Intra-Daily Variations in Pressure, Amer. Heart J.* 63: 663 (May) 1962.)

BLOOD TRANSFUSIONS Transfusions with blood stored less than 24 hours produce 92 per cent survival of transfused cells at 24 hours. The 24-hour survival of transfused cells which have been stored for 21 days is 84 per cent, this survival falls to 6.5 per cent if the blood has been stored in excess of 28 days. Blood which has been stored in the frozen state has a 24 hour post-transfusion survival of approximately 82 per cent. (Strumia, M. M., Dugan, A., and Colwell, L. S.: *Immediate and Subsequent Loss of Transfused Erythrocytes in Healthy Subjects, Blood* 19: 115 (Jan.) 1962.)

WARMING BLOOD Blood should not be warmed before administration except for reasonable qualifying circumstances. Continuous adequate refrigeration of blood is essential for suppression of bacterial growth, for reducing hemolysis, and for maintaining the viability and transfusability of the red cells. Two exceptions to this rule exist: (1) blood used for exchange transfusion of the newborn; and (2) massive transfusions in adults. Patients with cold blood group antibodies should be given blood which lacks the corresponding antigen. (Lesses, M. F.: *Warming Blood, Transfusion* 2: 88 (Jan.-Feb.) 1962.)

BLOOD VOLUMES Standard parameters of red cell volume and blood volume, which have been documented in young individuals, do not apply in octogenarians. In these subjects, the range of values is much greater, and prediction of total red cell volume from body weight or body water is unreliable. Surprising

blood volume reductions may be detected in lean-appearing, elderly men with normal hematocrits and normal water content. The major clinical import of this finding is the possibility that occult hypovolemia, which is not predictable from hematocrit measurement, may have serious consequences when certain elderly individuals undergo the trauma of accident or surgery. (Piomelli, S., and others: *Relationship of Total Red Cell Volume to Total Body Water in Octogenarian Males, Blood* 19: 89 (Jan.) 1962.)

ACID-BASE CHANGES pH, P_{CO_2} and bicarbonate of arterial plasma and lumbar cerebrospinal fluid have been studied in 23 normal subjects. The pH and bicarbonate of the cerebrospinal fluid were always lower than those of the arterial plasma, while the P_{CO_2} of the cerebrospinal fluid was always higher than that of the arterial plasma. In six subjects there was little difference between the P_{CO_2} of the cerebrospinal fluid and that of jugular venous blood. No significant difference in pH, P_{CO_2} and bicarbonate were found between lumbar and cisternal cerebrospinal fluid. The effect of chronic acidosis on the acid-base characteristics of the plasma and cerebrospinal fluid in patients with renal failure indicated that the depression of the bicarbonate in cerebrospinal fluid from the normal was on the average about half that in plasma. Despite acidemia, cerebrospinal fluid pH was always within two standard deviations of the mean value for normal subjects. The effect on cerebrospinal fluid of acute alkalemia was studied by administering sodium bicarbonate intravenously. Sodium bicarbonate was also given by mouth for longer periods of time to normal subjects and patients with renal failure. The normal ratio of cerebrospinal fluid bicarbonate to plasma bicarbonate was not restored after sodium bicarbonate administration in either the acute or long-term experiments. There was usually a small fall or no significant change in cerebrospinal fluid pH. This was because the increase in cerebrospinal fluid bicarbonate was matched by a proportionate or slightly greater rise in P_{CO_2} . Pulmonary ventilation was measured daily before and during five to seven days of bicarbonate treatment. No significant change in