

Human Extremity—The Diversion Phenomena, Am. J. Cardiology 4: 566 (Nov.) 1959.)

HEART BLOCK Pertinent hemodynamic findings via right heart catheterization in six patients with acquired heart block and rates under 40 per minute were (1) elevated right atrial and right ventricular systolic pressure; (2) atrial systolic waves transmitted to both right ventricle and pulmonary artery successively; (3) giant atrial *a* waves occurring at the time of simultaneous atrioventricular systoles but not in or near early diastole of the preceding ventricular beat; (4) systolic pulmonary hypertension; (5) reduced mean brachial artery pressure, but elevated mean pulmonary artery pressure; (6) increased total vascular resistance of both the pulmonic and systemic circulation; (7) reduced oxygen consumption; (8) reduced cardiac index; (9) increase of stroke index to 28 per cent or less above normal in four of the six patients. Injection of Isuprel via a catheter in the main pulmonary artery resulted in two patients in (1) increased ventricular rate; (2) conversion to sinus rhythm in one; (3) unaltered stroke volume; (4) increased cardiac output; (5) oxygen consumption unchanged; (6) decreased arterio-venous oxygen difference; (7) decreased total vascular resistance in pulmonary and systemic circuits. (*Levinson, D. C., and others: Hemodynamic Findings in Heart Block with Slow Ventricular Rates, Am. J. Cardiology 4: 440 (Oct.) 1959.*)

ADRENAL HYPERTENSION Many mechanisms have been proposed for etiology of hypertension, particularly the essential. Current evidence points to increased importance of participation of adrenal cortical hormones in the pathogenesis of certain types of hypertension. Increased blood pressure is seen in about 85 per cent of patients with Cushing's syndrome and can be reversed by adrenalectomy and maintained at normal levels by replacement therapy with hydrocortisone and DCA; in some cases of primary aldosteronism; in other types of adrenal hypersecretory states; and frequently in long term administration of DCA, cortisone, ACTH, and other common synthetic steroids with mineral corticoid activity. Possible mechanisms of

steroid hypertension are advanced: (1) electrolyte effects, *e.g.* sodium retention; (2) increased reactivity of blood vessels to epinephrine and/or norepinephrine due to either direct steroidal effect or by changes in electrolyte concentrations in blood vessel tissues; (3) adrenals may act as an intermediary link in development of essential hypertension since many patients may benefit from adrenalectomy and limited sympathectomy and not again become hypertensive when receiving replacement steroid therapy; (4) in essential hypertension adrenal steroid secretion may be only acting in form of a catalyst to permit some biochemical reactions necessary for development of hypertension; (5) possible imbalance of various steroid secretions. These are conjectural mechanisms and a definite clear cut pathogenesis of essential hypertension is still lacking. (*Mills, L. C., and Pontidas, E: Relationship of the Adrenal Cortex to Hypertension, Am. J. Cardiology 4: 719 (Dec.) 1959.*)

INTRA-ABDOMINAL PRESSURE Abdominal pressure of anesthetized dogs was elevated by the introduction of 18.5 mm. Hg compressed air through a cannula tied securely into the peritoneal cavity. Changes observed were: (1) Significant decreases in circulating plasma volume (T-1824); (2) Elevation of hematocrit and plasma protein concentrations; (3) Decrease in arterial pressure immediately upon elevation of the abdominal pressure, but these returned to pre-experimental levels prior to release of elevated abdominal pressure; (4) Lastly, a decrease in urine volume as well as a slight increase in serum potassium. Venous pressure in the great veins at the heart level was not increased. (*Jach, E. T., Marotta, S. F., and Marbarger, J. P.: Effect of Increased Intra-abdominal Pressure on Various Circulatory Parameters of the Anesthetized Dog, J. Appl. Physiol. 14: 940 (Nov.) 1959.*)

RHEOVASOGRAPHY An attempt was made to study the state of peripheral blood circulation in patients during surgery with the aid of the rheovasographic method. Using a special apparatus with a high frequency generator it is possible to record exactly the changing electric resistance of various sectors

of the tissue, conditioned by the state of blood circulation, and the vascular tonus of the peripheral arteries. The electrical signals which are obtained are magnified and registered on the ECG. Prior to the operation thin lead electrodes are placed on the lower third of the patient's shin. These are connected by a special cord to the rheovasograph and the electrocardiograph which is placed at the feet of the anesthetist. The anesthetist can easily watch the continuous dynamics of the rheovasographic changes in the course of the operation, watching the light bundle of the electrocardiograph. The possibility of using rheovasography in surgery was studied during surgery and in the postsurgical period in 2 patients who underwent gastric resection. Data were obtained which show that rheovasography helps to evaluate the state of the patients during various stages of surgery. Rheovasography manifests changes which occur at the moment when the surgeon manipulates in zones which are rich in neural receptors (the duodenal region and the cardiac section of the lesser omentum). The given series of rheovasograms shows that rheovasography which is made during the period of surgical intervention enables one to judge the efficacy of anaesthesia. As soon as the hand of the surgeon touched more widely innervated areas, the rheovasogram quite clearly reflected the reaction of the vessels to the pain impulses. This characteristic of rheovasography can prove to be very valuable in the development of new surgical methods and very helpful in the evaluation of new narcotics. Changes in the picture of the rheovasogram reflected the rise of the vascular tonus. The rheovasogram constantly reflected the degree of completeness of anaesthesia of highly sensitive regions. (Karelin, V. A., and Potapov, E. G.: *Possibility of Using the Rheovasographic Method for the Registration of Peripheral Circulation During Surgery*, *Klin. Med. (Moskva)* 35: 112 1957.)

ARTERIAL PATENCY. By means of a series of pneumatic cuffs applied to an extremity, any two of which can be connected simultaneously to a transducer, the registration of pulse volumes from various parts of

a limb has been found to be an accurate and simple method of demonstrating local vascular patency and change in blood vessel tonus after induced vasoconstriction or vasodilatation. Special value of the method lies in the fact that pulse tracings reflects the deep as well as the superficial circulatory status. Serial tracings are presented which show typical patterns for vasospastic disease such as poliomyelitis vasoconstriction and Raynaud's disease in contrast to those predominately organic, e.g. distal and diffuse arteriosclerosis, aortic obstruction, panarteritis nodosa and advanced scleroderma. The status of circulation can be determined with accuracy in both proximal and distal portions of a limb. The method lends itself to determining the extent of the vasospastic component in both pure vasospastic disease and obliterative disease and arriving at a rational course of medical or surgical therapy for individual cases. (Edwards, E. A., Ottinger, L., and Ruburti, U.: *Pulse Registration as a Means of Evaluating Peripheral Vascular Patency and Vasomotor Activity*, *Am. J. Cardiology* 4: 572 (Nov.) 1959.)

SHOCK Shock can be remedied only by those means which eliminate paresis of the capillaries and normalize the blood flow in them. Recommended for this purpose is the preparation ferrofusin, the basic active substance of which is colloidal iron, prepared by the method of irradiation of pure iron with a quartz lamp. The composition of this preparation is: sodium chloride 9.0, sodium bicarbonate 0.2, glucose 1.0, salicylic sodium 0.1, gelatin 10.0, colloidal iron 47 to 50 mg., distilled water 1,000.0. The basic constants are: specific gravity 1.11; viscosity at 20 degree 1.7, pH 7.4, osmotic pressure 8 atmospheres. Intravenous or intraarterial administration of this preparation produces capillarostenosis, which restores blood circulation. Ferrofusin yields a good therapeutic effect in shock of varied aetiology. This preparation is cheap and simple to make. At room temperature it keeps for a year, and has no adverse side effects. (Goldberg, I. M.: *Pathogenesis and Therapy of Shock*, *Sborn. Rab. Voronezhsk. Med. Inst. (Voronezh)* 30: 5, 1958.)