

shock in three. Etiology of this shock syndrome was believed to be similar to that of experimental shock produced with adrenaline and noradrenaline. (Spoerel, W., and others: *Shock Caused by Continuous Infusion of Metaraminol Bitartrate (Aramine)*, *Canad. Med. Ass. J.* 90: 349 (Feb. 1) 1964.)

LEVARTERENOL NECROSIS Evidence suggests that there may be a relation between the lesions produced by endotoxin and alterations in circulating or local levels of levarterenol, or epinephrine, or both. Studies have shown that an intravenous injection of endotoxin, followed by an intradermal injection of epinephrine or levarterenol within the ensuing four hours, produces extensive hemorrhagic necrosis of the skin at the injection site. Endotoxin in some manner alters the response of blood vessels to epinephrine and levarterenol, enabling these hormones to produce necrotizing vascular lesions. Animals in whom an epinephrine tolerance has been developed demonstrate no inhibitory effect on the local necrotizing phenomenon, but generalized reactions, as evidenced by renal cortical necrosis, are inhibited by the previously developed epinephrine tolerance. (Hall, D., and others: *Effects of Epinephrine Tolerance on the Schwartzman Phenomenon*, *Amer. J. Path.* 44: 431 (Mar.) 1964.)

ALPHA AND BETA RECEPTORS Many substances are known which can block alpha sympathetic receptors, but until recently only one beta receptor blocker had been synthesized (dichloroisoproterenol). A new beta blocker (2-isopropylamino-1-2-naphthylethanol HCl), ("Nethalide") is now available and useful in the investigation of the significance and extent of sympathetic control of cardiac function. Hemodynamic changes following injection of norepinephrine and epinephrine in intact and lightly anesthetized dogs before and after beta adrenergic blockade were studied. Response to injected catechol amines is determined by a complex inter-relationship of various factors controlling circulatory homeostasis. The ventricle, under the influence of beta receptor blockade, responded to additional pressure load with decreased performance characteristics. (Kako, K., and others: *Cardio-*

vascular Effects of Catechol Amines in Dogs Before and After Beta-Adrenergic Blockade, *Naunyn-Schmiedeberg Arch. Exp. Pathol.* 246: 297, 1964.)

CONTROLLED HYPOTENSION Controlled hypotension is accomplished by ganglionic blockade associated with controlled posture and controlled respiration. Ganglion block is usually achieved by intravenous drugs and the hypotension which follows is dependent on posture and respiration, both of which are controlled by the anesthetist. Posture achieves hypotension by pooling blood in vessels of the lower extremities. Veins, which are the capacity vessels of the circulation, must be dilated and capable of accommodating the blood in order to achieve a satisfactory hypotension. Tipping also achieves a gradient of blood pressure throughout the body and the production of "postural ischemia." The cerebral blood flow in the tipped patient may fall to a critical level, and must be watched carefully for clinical signs of cerebral ischemia. Controlled respiration, by raising the intrapulmonary pressure, controls the venous return to the heart and the output of the right heart into the pulmonary circulation. The PCO_2 must remain near normal for satisfactory control of blood pressure. Halothane has proved a most valuable addition to the hypotensive technique by increasing the sensitivity to ganglion blocking drugs as well as by its own inherent hypotensive action. The oscillogram is a valuable instrument for blood pressure monitoring. Personal experience is essential to obtain satisfactory and reliable results. (Enderby, G. E. H.: *Controlled Hypotension in Anaesthesia and Surgery*, *Der Anaesthetist* 13: 22 (Jan.) 1964.)

HEMORRHAGE In a study of seasonal resistance to hemorrhage, over 100 dogs were bled a percentage of their blood volume in the production of a standard shock experiment. A seasonal variation in resistance was confirmed. For example, loss of 39 per cent of the blood volume caused 12 per cent mortality in February and November, but 100 per cent mortality in July. Blood loss was tolerated better in the fall and winter than in the spring and summer. (Swan, H., and others: