hydrogen ions will be liberated again, and may thus influence the acid-base status, when the blood is resaturated. *(Woestijne, K. P., and others: Changes in Oxygen Saturation and Acid-Base Equilibrium During Ventilatory Standstill in Dogs, Surgery 53: 332 (Mar.) 1963.)*

COAGULATION AFTER PERFUSION During extracorporeal circulation employing the DeWall bubble oxygenator and the disc oxygenator, prothrombin, proaccelerin and thromboplastin generation are impaired while the patient is heparinized. Neutralization of the heparin usually restores these factors to normal levels in the immediate postoperative period. Severe hemorrhage was due to low fibrinogen levels and increased fibrinolytic activity. *(Phillips, L. L., Malm, J. R., and Deterling, R. A.: Coagulation Defects Following Extracorporeal Circulation, Ann. Surg. 157: 317 (Mar.) 1963.)*

HYPOTHERMIA Profound hypothermia at less than 12° C. in 16 patients subjected to open-heart surgery for repair of aortic valve lesions showed postoperative brain trauma. Recovery took place in 75 per cent of these within four months. In a comparable series of patients, no brain damage occurred postoperatively when hypothermic temperatures were in the range of 24° to 33° C. There is no indication for the use of hypothermia below 15° C. *(Egerton, N., Egerton, W., and Kay, J. H.: Neurologic Changes Following Profound Hypothermia, Ann. Surg. 157: 366 (Mar.) 1963.)*

CARDIOVASCULAR RESEARCH Experimental data are applicable without reservation only to the specific conditions under which they were collected. The use of general anesthesia on animals to perform the same procedures that are routinely accomplished on human subjects with only topical anesthesia may complicate interpretation of experimental observations. Changes in function induced by an investigator during physiologic experiments indicate potential rather than actual mechanisms. The responses to artifically induced loads indicate what can happen rather than what does happen during normal spontaneous reactions. *(Rushmer, R. F., and others: Some Axioms, Popular Notions and Misconceptions Regarding Cardiovascular Control, Circulation 27: 118 (Jan.) 1963.)*

SLUDGING Sludging during hypothermia can be prevented by maintaining an arterial pressure above 50 mm. of mercury. Blood changes which accompany hypotension in surface cooled animals are reversible and are not like the persistent sludging which is a feature of infections, burns, and severe trauma. These changes are those of microcirculatory slowing and stasis related to low arterial pressure. *(Keen, G., and Gerbode, F.: Observations on the Microcirculation During Profound Hypothermia, J. Thor. Cardiov. Surg. 45: 252 (Feb.) 1963.)*

INDUCED HYPOTENSION Plegarol has been used in 288 patients to induce hypotension. It is believed to be far superior to Arfonad. Given intravenously, the onset is rapid; given intramuscularly, onset and duration of effect are prolonged. Small doses given intramuscularly can lower the blood pressure to about 80 mm. of mercury for several hours. It has been used for as long as three days following surgery. Conscious patients tolerate it quite well and sympathomimetic drugs counteract its effect immediately. *(Vogrin, G.: Prolonged Controlled Lowering of Blood Pressure with Plegarol in Cases of Acute Brain Trauma and Neurosurgery, Muenchener Med. Wschr. 105: 531 (Mar.) 1963.)*

SHOCK As measured by the radioisotope dilution principle, average blood volume deficit in 24 animals subjected to endotoxic and irreversible hemorrhagic shock was 7 per cent. In experimental endotoxic shock and after prolonged transfusion following hemorrhagic shock, blood volume was not altered sufficiently to account for death on the basis of hypovolemia alone. *(Grable, E., and others: Blood Volume in Experimental Endotoxic and Hemorrhagic Shock, Ann. Surg. 157: 361 (Mar.) 1963.)*

SHOCK Fibrinogen in the normal dog is not affected by fibrinolysin in doses of 2,000 MSD U./kg. A marked decrease in fibrinogen is produced by fibrinolysin in dogs in hemorrhagic shock and irreversibility is inhibited. Change

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of fibrinogen to fibrin in hemorrhagic shock strongly suggests that intravascular coagulation takes place in this type of shock. (*Hardaway, R. M., and Burns, J.: Mechanism of Action of Fibrinolysin in the Prevention of Irreversible Hemorrhagic Shock, Ann. Surg. 157: 305 (Feb.) 1963.*)

HEMORRHAGIC SHOCK In dogs which survived hemorrhagic shock, effective blood volumes during the shock period were found to be 3 to 9 per cent greater than expected; after blood replacement their blood volumes were 5 per cent less than expected. The animals which died of hemorrhagic shock had lower than expected blood volumes at all times. The prompt and progressive entry of extravascular fluid and erythrocytes into the effective circulation appears to be the major factor promoting survival. After re-transfusion, plasma is lost from the circulation. Other animals were given lethal doses of *Escherichia coli* endotoxin. Blood volumes were not altered during endotoxin shock. The rise in hematocrit was attributed to plasma sequestration and simultaneous entry of erythrocytes into the effective circulation. (*Doberneck, R. C., Johnson, D. G., and Hardaway, R. M.: Blood Volume Adjustments to Shock in Dogs, Arch. Surg. 86: 267 (Feb.) 1963.*)

HEMOLYTIC REACTION In a Kell-negative recipient without irregular antibodies, Kell-positive erythrocytes from one transfusion reacted with high-titered anti-Kell antibodies present in a unit of blood transfused subsequently. It was possible to demonstrate *in vitro* sensitization of mixed populations of Kell-positive and Kell-negative red cells exposed to antibody dilutions analogous to those in the patient. (*Zettner, A., and Bove, J. R.: Hemolytic Transfusion Reaction Due to Interdonor Incompatibility, Transfusion 3: 48 (Jan.–Feb.) 1963.*)

TRANSFUSION REACTIONS Renal shutdown is a serious complication of transfusion reactions. When oliguria is observed, resuscitative procedures, including mannitol infusion, should be applied promptly. Even when oliguria has been present for several hours and signs of renal shutdown are present, mannitol frequently is capable of restoring sufficient renal function to prevent the complications and mortality associated with oliguric renal failure. When oliguria persists, early transport to a Renal Center is indicated. (*Barry, K. G., and Crosby, W. H.: Prevention and Treatment of Renal Failure following Transfusion Reactions, Transfusion 3: 34 (Jan.–Feb.) 1963.*)

NITROUS OXIDE TOXICITY Inhalation of nitrous oxide for periods of time varying from 3 to 19 days was effective in reducing white cell formation in acute and chronic myelogenous leukemia. Nitrous oxide may be toxic on chronic administration. The mechanism by which nitrous oxide produces depression of cell formation is not known, but presumably is similar to the depression of the central nervous system associated with analgesia, anesthesia, and unconsciousness following the administration of nitrous oxide. Nitrous oxide may not be of major benefit in the treatment of leukemia, but the studies of the action of the agent on the hematopoietic system may reveal information concerning the mechanisms of narcosis. An unusual benefit from the administration of nitrous oxide for long periods of time was the relief of pain which continued during times when the patients were not receiving the nitrous oxide. The possibility of addiction following repeated administrations was raised. (*Eastwood, D. W., and others: Effect of Nitrous Oxide on the White-Cell Count in Leukemia, New Engl. J. Med. 268: 297 (Feb. 7) 1963.*)

HYPERBARIC OXYGEN Two patients with arterial disruption in the lower leg were treated with administration of oxygen by face mask in a chamber in which the pressure was two atmospheres. One had no loss of limb and one needed only midtarsal amputation. Several patients with occlusive arterial disease of the legs appear to have done better than might have been expected. Dogs with total circulatory arrest when similarly treated survived 50 per cent longer under hypothermia (21° C.) than dogs treated with hypothermia alone. (*Illingworth, C.: Treatment of Arterial Occlusion Under Oxygen at Two Atmospheres Pressure, Brit. Med. J. 2: 5315 (Nov. 17) 1962.*)

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