

HYPOTHERMIA A 32-week-pregnant woman developed a hemorrhage from an intracranial aneurysm which necessitated urgent craniotomy. She was operated upon using hypothermia to 30 C. and because of hemorrhage from the aneurysm her blood pressure was deliberately lowered by use of an 0.2 per cent solution of trimetaphan. The lowest recorded pressure was 40/25. Twenty-nine hours after operation, the patient gave birth to a normal child despite the fact that there had been long-continued uterine hypertonicity and excessive fetal movements toward the end of the operation. The patient recovered completely except for a slight dysphasia. (*Wilson, F., and Sedzimir, C. B.: Hypothermia and Hypotension during Craniotomy in a Pregnant Woman, Lancet 2: 947 (Nov. 28) 1959.*)

HYPOTHERMIA Experiments revealed that in animals with body temperature decreased to 28° C., as well as in those subjected to sedation without refrigeration, no change in antibody production or in the synthesis of nonspecific serum proteins was observed. Marked retardation of synthesis of specific and nonspecific serum proteins occurred only as a result of refrigeration (28° C.) combined with sedation. Antibody synthesis changed correspondingly to the rate of the synthesis of nonspecific serum proteins. (*Ughitel, I. Ya., and Konikova, A. S.: Antibody Production Under Decreased Body Temperature, Zh. Mikrob. Epid. i Immunobiol. 10: 77, 1958.*)

ERYTHROCYTE METABOLISM A principal function of the immature erythrocyte is the biosynthesis of hemoglobin, while that of the mature cell is to maintain hemoglobin in a functional state. The synthesis of heme from its simple precursors, glycine and succinate, is presented briefly. The biosynthesis of globin occurs in the same erythroid cells, but is much less well understood. However, investigation into hemoglobinopathies has revealed that sickle cell hemoglobin differs from normal hemoglobin in that one peptide has a valine instead of a glutamic acid residue; and hemoglobin C has a lysine residue in place of the same glutamic acid residue on the same peptide. Once hemoglobin is formed, the erythro-

cyte must maintain it in the reduced state (iron in ferrous form) for only then is hemoglobin capable of binding oxygen reversibly. This requires a mechanism for the continuous reduction of methemoglobin (iron in ferric form). The enzyme systems involved are dependent upon the integrity of the erythrocyte, are associated with carbohydrate metabolism of the cell, and require the regeneration of reduced pyridine nucleotides. In a study testing the susceptibility of erythrocytes to hemolysis by immune serum, nonisotonic solutions, and primaquine, young adult cells were far more resistant to lysis than older cells. From these and other studies, it is clear that the erythrocyte undergoes a process of aging and that its destruction is the end result of such aging. (*London, I. M.: Metabolism of the Mammalian Erythrocyte, Bull. New York Acad. Med. 36: 79 (Feb.) 1960.*)

RED CELL LYSIS Incomplete antibodies which bind complement bring about removal of most or some of transfused red blood cells with a half time of two to six minutes, mostly by the liver. Incomplete antibodies which do not bind complement bring about removal of red blood cells predominately in the spleen. Removal occurs in splenic circulation if the titer is 64 or higher; lower titers are associated with slower rates of removal. Decreased survival of red blood cells below expected times occurs in about one transfusion in 20 even though no antibodies to these cells are present. This destruction is too slow, however, to cause untoward effects. (*Mollison, P. L.: Blood Group Antibodies and Red Cell Destruction, Brit. Med. J. 2: 1035 (Nov. 21) and 2: 1123 (Nov. 28) 1959.*)

ERYTHROPOIESIS The relationship between the kidney and erythropoiesis was investigated in dogs subjected to bilateral nephrectomy or ureteral ligation. Removal of both kidneys is followed by a rapid depletion of erythroblasts from the marrow. Iron measurements showed a low iron turnover and reduced Fe⁵⁹ incorporation in red cells of nephrectomized dogs. Bilateral ureteral ligation, although it results in the same elevation of blood urea nitrogen and the same degree of starvation as in the nephrectomized group,