basis of these results it is proposed that the impaired erythropoiesis in marasmus is not caused by a specific nutritional deficiency. The 'anemia' that is present represents an adaptation to the reduced metabollic demands of these undernourished subjects. The proliferative activity of the erythropoietic tissue may provide a sensitive measure of response to nutritional rehabilitation. (APS)

57 *Autoimmune Hemolytic Anemia in a Patient with Congenital Hypogammaglobulinemia.* HOWARD A. PEARSON, JOHN B. ROBBINS and RICHARD G. SKINNER*, Univ. of Florida, College of Medicine, Gainesville, Fla., and Children's Medical Group, Jacksonville, Fla.

Since the clinical findings of hypogammaglobulinemia (HGG) are explained by a deficient synthesis of circulating antibody, the development in such a patient of autoimmune hemolytic anemia (AHA), due to excessive production of a specific abnormal antibody is of interest. A six-year-old boy with HGG, of the sex linked variety, developed Coombs' positive AHA despite profound deficiencies of immunoglobulins (IgG 100, IgM 18, IgA 0 mg %). He had never received transfusion and penicillin had not been given for 3 months. Lymph node biopsy did not show malignant changes and cytomegalic virus could not be cultured. Direct and indirect Coombs' tests, using gost anti-human IgG and IgM sera, were positive. Eluted antibody was an IgG globulin. The serum reacted with all cells of a large panel but tests by Ortho Labs showed specificity against the public Rh antigen designated LW. The commercial gamma globulin used for therapy had no anti RBC activity. He has responded well to corticosteroids for 6 months, but has relapsed twice when this was discontinued. Although three adults with acquired HGG have developed AHA, this case represents the first instance in a patient with congenital HGG. All of the adults have had lymphoma or leukemia. Possibilities to explain this combination include graft vs host reaction with secondary 'runt' disease. Although unlikely in view of the patients age and lack of blood transfusions, investigations to examine this possibility are in process. Alternatively lymphoma may be present, and, if this proves true, speculations both on the nature of lymphoma and hypogammaglobulinemia are possible. (SPR)

58 *Inappropriate Glucose Consumption by the Erythrocytes of the Premature Infant.* FRANK A. OSKI, ERNESTINE P. BRIGANDI* and CHARLES F. SMITH*, Dept. of Pediatrics, Hosp. of Univ. of Pa. and Univ. of Pa. Sch. of Med., Philadelphia, Pa.

Although it is recognized that the red cells from premature infants consume more glucose than do the cells from adults no attempt has been made to determine if this increased glucose consumption is proportional to the younger mean age of the red cell population. Specific gravity separation revealed that 50 % of the red cells from the premature infant are as young as the youngest 10 % from adults. Red cell glucose consumption and lactic acid production was measured in 15 premature and 23 term infants, 23 adults and 12 subjects with reticulocytosis (mean 6.8 %). Glucose consumption was related to cell age expressed as a function of red cell G-6-PD and glutamic-oxaloacetate transaminase (GOT) levels, both enzymes particularly GOT showing marked variation in red cell populations of differing ages. Red cell glucose consumption expressed as $\mu$M/ml RBC's/h/100 GOT u. averaged 0.121 in the adults, 0.094 in the group with reticulocytosis, 0.086 in the term infants and only 0.068 in the prematures. When glucose consumption was expressed as a function of 100 G-6-PD units values averaged 1.01 in the reticulocytosis group, 0.86 in the adults, 0.80 in the term infants, and 0.64 in the prematures. Both GOT/G-6-PD and lactate/glucose ratios were similar in the 4 groups. GOT averaged 2928 u/$10^{10}$ RBC's in the reticulocytosis group, 2904 in the prematures, 2499 in the term infants, and 1196 in the adults. The red cells of the premature infant appear to consume less glucose than would be expected from their young cell age. This finding suggests that 1 or more regulatory steps in glycolysis may be operating at different $K_m$'s or that these cells utilize other substrates as a source of energy. (SPR)

59 *Prevention of Hyperbilirubinemia of Prematurity by Phototherapy.* JEROLD LUCEY, MARIO FERREIRO* and JEAN HEWITT*, Department of Pediatrics, University of Vermont College of Medicine, Burlington, Vt.

The ideal treatment for hyperbilirubinemia of prematurity would be a safe and simple method for preventing its occurrence. CREMER *et al.* (1958) first demonstrated that serum bilirubin concentrations of newborn infants can be reduced by exposure to light. This treatment has not been widely used because of doubts as to its effectiveness and concern for the possible toxicity of the photochemical decomposition products of bilirubin. Recent experimental evidence indicated that these products are non-toxic. A controlled clinical trial has been carried out among 59 premature infants to test the effectiveness of artificial blue light in *preventing* hyperbilirubinemia of prematurity. Treated infants were placed in light from 12 to 144 hours of age and serial bilirubin determinations were carried out. The control and treated groups were comparable with respect to birth weight, gestational age, fluid intake and weight loss. The results are summarized below and indicate a statistically significant difference between the groups. Additional observations on the effect of phototherapy on serum albumin. H.A.B.A. dye binding capacity, free fatty acids and uric acid will be presented. (APS)

| | Control | Light Treatment |
|---|---|---|
| Number of infants | 31 | 28 |
| Serum bilirubin—Mg % | | |
| 1st day | 4.0±0.5 | 3.7±1.4 |
| 2nd day | 7.5±3.3 | 5.3±1.4 |
| 4th day | 9.7±3.5 | 5.4±1.9 |
| 6th day | 8.2±5.6 | 4.9±2.2 |

60 *Indications for and Consequences of Intrauterine Transfusions.* PAUL JOHNSON*, ALAN MARGOLIS*, SUSIE FONG*, RODERIC H. PHIBBS* and WILLIAM H. TOOLEY*, Department of Pediatrics, Obstetrics, and the Cardiovascular Research Institute, Univ.-California-S.F. Medical Center, San Francisco, California (introduced by M.M. Grumbach).

We performed spectrophotometric analyses (technique of Liley) on 595 amniotic fluid specimens from 310 Rh-sensitized women; 1 or more specimens from 84 women had concentrations of pigment above levels which are generally considered to predict, with 95 %