

URINE STUDIES

Twenty-four-hour excretion studies of microcrystalline chloramphenicol were made. In a study of 19 premature infants under 7 days old, an average of 20% of the daily dose was recovered (range 5%–52%). A higher average, 33%, was recovered from 5 infants over 10 days old (range 1.4%–50%). In similar studies on adults Glazko (12) was able to recover 90% of the daily dose, of which 5%–10% was excreted as the active form. In our studies on 8 premature infants under 7 days old, 7.7% of a dose was excreted in the active form, in older prematures, 9.2%.

BLOOD CHEMISTRIES

Blood chemistry determinations taken at the start of treatment, 24 hours later, and at 96 hours, were studied in 32 1- to 2-day-old premature infants on chloramphenicol injections of 25 mg/kg daily. BUN levels ranged from 8 to 30 mg%, except for 3 infants whose levels were 37, 53, and 89 mg%. The 2 infants with levels of 37 and 53 mg% had the lowest levels of nitro compounds in their respective test groups. The remaining infant, whose blood urea nitrogen level at the start of treatment was 89 mg% and at 24 hours was 85 mg%, gradually accumulated nitro compound levels to 56 µg/cc at 72 hours.

This infant, who weighed 1,162 gm. at birth, was 4 days old and in apparently good condition at the start of treatment with 25 mg/kg/day of microcrystalline chloramphenicol. Except for mild dehydration, his clinical condition remained good until the fifth day of treatment when he developed lethargy, respiratory distress, and abdominal distention. The chloramphenicol was discontinued, but the baby's symptoms progressed until death 48 hours later. A white blood cell count on the day before death was 29,500, with 74 segmented forms, 5 band forms, and 21 lymphocytes. A blood culture before death grew *E. coli*, sensitive only to polymyxin. Autopsy revealed pulmonary hemorrhage.

With the exception of the infant mentioned above, there was no consistent correlation between the BUN and nitro compound levels. Of 8 infants who had BUN levels between 25 and 30 mg%, 7 had nitro compound levels similar to others in their test groups. BUN levels below 10 mg% were not accompanied by low nitro compound levels.

Serum potassium levels were under 7 mEq/L in all except 3 infants. Two of these had low blood nitro compounds levels. The third was the infant mentioned above with elevated BUN levels, who died.

Blood sugar levels ranged between 26 and 107 mg%, except for the infant described above whose level was 144 mg% initially, and 126 mg% at 24 hours.

There was no correlation between serum bilirubin levels and levels of nitro compounds in 30 infants tested. For example, one infant had high blood nitro compound levels and a bilirubin level of 17 mg%. Another had a bilirubin of 16.8 mg% and low nitro compound levels. Infants receiving chloramphenicol had no increase in incidence of jaundice.

MORTALITY

Tests were performed on 126 premature infants. Six infants died during or after treatment. In general, infants in good condition were selected for study, making the mortality rate in this group meaningless. The clinical course of one of the infants who died is outlined above. A brief résumé of the histories of the remaining 5 infants follows:

Baby, birth weight 2,180 gm., demonstrated webbing of the neck and minor skeletal anomalies, but was in good general condition at the start of treatment with 50 mg/kg/48 hours of microcrystalline chloramphenicol. At 10 days of age, following 7 days of treatment, the infant died suddenly. Autopsy revealed infantile coarctation of the aorta. Blood levels of nitro compounds were consistently low.

Baby, birth weight 1,280 gm., died at 2 days of age after 1 injection of 50 mg/kg. Blood level at 24 hours was 40 µg/cc. Autopsy revealed intraventricular cerebral hemorrhage.

Baby, birth weight 1,920 gm., was in good condition at 4 days of age when treatment with mg/kg/48 hours of microcrystalline chloramphenicol was started. The baby developed lethargy, cyanosis, abdominal distention, and apnea at the start of treatment. Blood and spinal fluid cultures grew an organism of the *Klebsiella-Aerobacter* group, sensitive to chloramphenicol. Treatment was continued but the infant died at 6 days. Autopsy confirmed the diagnosis of purulent meningitis.