SUMMARY

Neonatal septicemia remains an unsolved problem associated with a high mortality rate, in spite of careful hygiene and powerfal broad spectrum antibiotic treatment . Septicemia of the neonate is usually a life threatening disease, where early diagnosis and prompt treatment are essential for the outcome. The early signs and symptoms of infection are often unspecific and vague. Therefore, routine labortory aids which are simple, rapid and specific are badly needed. Diagnosis of neonatal sepsis is not an easy task. An accurate and specific diagnosis can be confirmed only by the isolation of the organisms from blood i.e by a positive blood culture. While unfortunately, a bacteremic infant may die many hours before the results culture are available, most infants presenting with the same signs are probably not seriously infected, and no doubt many are treated unnecessarily. On the other hand, to delay treatment until symptoms and signs of sepsis are obvious brings the risk of preventable mortality.

The adrenal cortex of the human neonate is able to compensate very quickly within the first hours after birth for the loss of its main supplier of steroid precursors, the placenta. By term adrenal stroidogenesis is proceeding at a higher rate than at any other stage of development, and the gland is capable of responding to input signals mediated by pituitary ACTH or the renin- angiotensin system.

There is no evidence of insufficient secretion of adrenal steroids during neonatal septicemia and in most cases the adrenal gland of the infant and young child can respond adequately to its stress.

The aim of this work is to clarify the adrenal functions of newborn in cases of septicemia; to assess the adrenal response to the stress of sepsis, and evaluate the

value of adrenal hormones as prognostic factors for the outcome of neonatal septicemia.

The study included 60 neonates who were classified into 2 groups : -

group I : included 40 septicemic newborns in whom blood cultures were positive. ten of these infants were preterm infants while, the other 30 were fullterm infants.

group II : included 20 healthy newborns, 8 of which were preterms, while the other 12 were fullterms.

Each case was subjected to the following investigations :

A) Heamatological study : full blood picture with special emphasis on haematological score parameters.

B) Blood culture.

C) Adrenal functions study : serum cortisol by the radioimmuno- assay, serum aldosterone by the radioimmunoassay and 24 hours urine catecholamines by flourimetric method.

D) Serum sodium, potassium, and calcium.

The number of septicemic patient with a haematological score ≥ 3 were 33, whereas 7 patients out of 40 patients were false negative i.e positive blood culture & haema tological score ≤ 3. The sensitivity of the haematological score as a test for early prediction of neonatal sepsis was 82.5%.

The mean for serum cortisol values in the septicemic patients was significantly higher than in the controls. There was no a significant difference in the mean for serum cortisol values between septicemic preterm infants and septicemic fullterm infants. In patients with shock the mean for serum cortisol value was significantly higher than in patients without shock. There was no significant difference in the

mean for serum cortisol values between the patients who eventually survived and the patients who eventnally died . There were no significant correlations between serum cortisol and serum sodium, potassium, or calcium.

The mean for serum aldosterone values in the septicemic patients was significantly higher than in the controls. There was no significant difference in the mean for serum aldosterone values between septicemic preterm infants and septicemic fullterm infants. In patients with shock the mean for serum aldosterone values was significantly higher than in patients without shock. There was no a significant difference in the mean for serm aldosterone values between the patients who eventually survived and the patients who eventually died. There were no significant correlations between serum aldosterone and serum sodium, potassium, or calcium.

The mean for 24 hours urine catecholamines in the septicemic patients was significantly higher than in the controls. There was no significant difference in the mean for 24 hours urine catecholamines between septicemic preterm infants and septicemic fullterm infants . However, there was no significant difference in the mean for 24 hours urine catecholamines between the patient with shock and the patients without shock. There was no significant difference in the mean for 24 hours urine catecholamines between the patient who eventually survived and the patients who eventually died . There were no significant correlations between 24 hours urine catecholamines and serum sodium, potassium, or calcium.

Assessment of the adrenal functions in the septicemic patients is important to detect those who fail to exhibit a good response to the stress of the septicemic process. In this view, glucocorticoid replacement therapy to these patients may be of great value .