SUMMARY

Neonatal bacterial sepsis has continued in this decade to contribute significantly to neonatal mortality and morbidity and is a critical determinant of outcome in infants of low birth weight despite the availability of antibiotics.

This study was done in the neonatal intensive care unit of Mansoura University Hospital and included 70 neonates; 25 septicemic full terms and 25 septicemic preterms with clinical signs and symptoms suggestive of neonatal septicemia confirmed by positive blood culture; 10 healthy full terms and 10 healthy preterms were taken as control.

Each patient was subjected to complete history and clinical examination for symptoms and signs of infection. The clinical manifestations found in septicemic patients were nonspecific. The most common clinical manifestations were poor feeding, lethargy, respiratory distress, abdominal distension and Jaundice.

A heamatologic screen was done for these babies suspected by clinical examination and history to have septicemia; a full blood count and C-reactive protein were done.

The most common hematological abnormalities detected among our septicemic full terms were; increased immature/

total neutrophil ratio (above 0.3) (88%), increased immature/mature neutrophil ratio (above 0.2) (88%), increased immature neutrophil count (above 600/cumm) (80%) and thrombocytopenia (below 150.000) (72%). The total leucocytic count was not of predictive value in neonatal septicemia. No significant difference was found in these hematological parameters in septicemic full terms and preterms, except neutropenia which was more common in preterms.

The C-reactive protein was also found to be a helpful test in the diagnosis of neonatal septicemia (+ve in 92% of septicemic full terms and 80% of septicemic preterms).

Blood culture was done for all cases suspected by clinical and hematological score to have infection. Gram-negative organisms accounted for 76% of confirmed neonatal sepsis (Enterobacter cloacae in 44%, Pseudomonus species in 28%, Salmonella in 2% and Serratia marcesenes in 2%) and Staphylococcus aureus in 24%.

For those cases, an immunological study was done including C3, C4, plasma fibronectin and neutrophil fibronectin score. The concentration of C3 (101.2 $\pm$ 31.80 mg/dl) and C4 (25.9 $\pm$ 6.55 mg/dl) in healthy full terms have been found to be near 50% of the adult level reported in the litterature. Both levels were significantly higher ($P<0.001$)

in full terms than in preterms (C3: 72.4 ± 30.84 mg/dl, C4: 11.94 ± 4.32 mg/dl).

There was a highly significant decrease of C3 (63.3 ± 29.15 mg/dl) and C4 (10.2 ± 5.08 mg/dl) in septicemic full terms compared to control ones and there was a mild significant decrease of C3 (57.48 ± 16.93 mg/dl) and C4 (9.88 ± 3.13 mg/dl) in septicemic preterms compared to control ones.

The control full terms in this study was found to have levels of fibronectin in plasma one fourth to one third (70.32 ± 19.85 ug/dl) of those reported in healthy adults. In control preterms, the plasma concentration of fibronectin (49.4 ± 17.66 ug/ml) was lower than those of term infants and a direct moderate correlation has been found between fibronectin level and gestational age.

There was a highly significant decrease of plasma fibronectin in septicemic terms (38.6 ± 24.89 ug/ml) compared to control full terms while, no significant difference was found between plasma fibronectin in septicemic preterms (40.8 ± 3.87 ug/ml) compared to control ones.

There was no significant difference between neutrophil fibronectin in control full terms (score: 41.94) compared to control preterms (score: 40.99). On the other hand, there was a highly significant increase of neutrophil fibronectin in septicemic full terms (score: 131.79) compared to control ones (score: 41.94) and a moderetly significant increase in septicemic preterms (score: 90.63) compared to control ones (score: 40.99). So, if we compare the immunological parameters in septicemic full terms to those of control full terms, there was a highly significant decrease of C3, C4 and plasma fibronectin and a highly significant increase of neutrophil fibronectin score in septicemic full terms. In septicemic preterms, C3, C4 and plasma fibronectin showed a mildly significant decrease when compared to control preterms, while fibronectin score showed moderately significant increase.

There was a negative perfect correlation between each of these 3 parameters (C3, C4 and plasma fibronectin) and neutrophil fibronectin in septicemic full terms, while only moderate correlation was found in preterms.