SUMMARY AND CONCLUSION

Despite improved neonatal care over the past decades, infections remain common and sometimes life-threatening in neonates admitted to the neonatal intensive care unit (NICU).

For many years, a search has been ongoing to find predictors of neonatal sepsis that identify effectively patients who are at risk of infection.

Mannose-binding lectin (MBL) is a plasma protein that plays an important role in the innate immune defence.

The aim of our study was to investigate whether low MBL levels are associated with the occurrence of neonatal sepsis, which will help us in early and accurate diagnosis as well as in early initiation of appropriate therapy.

This study was conducted on 30 neonates diagnosed as having sepsis, whether confirmed or suspected (15 full-term and 15 preterm) and 20 healthy neonates with no clinical signs or laboratory evidence for sepsis serving as a control group (10 full-term and 10 preterm).

The patient group compromised 30 newborns; 13 males (43.3%) and 17 females (56.7%), with mean gestational age of (34.6± 3.2 weeks), mean birth weight of (2.1 ± 0.6) and mean serum MBL level of (0.073 ± 0.4).

The control group compromised 20 healthy newborns; 13 males (43.3%) and 17 females (56.7%), with mean gestational age of (37.1 ± 2.7), mean birth weight of (2.9 ± 0.4) and mean serum MBL level of (1.92 ± 1.7).

In the patient group, 10 (33.3%) neonates were delivered vaginally, and 20 (66.7%) neonates were delivered by caesarian section. In the control group, 9 (45%) neonates were delivered vaginally, and 11 (55%) neonates were delivered by caesarian section.

For all neonates, the following were performed:

1- History taking (To detect risk factors for sepsis).

2- Thorough clinical examination (To detect clinical signs of sepsis).

3- Laboratory investigations:

- Blood samples were withdrawn from all neonates either from cord blood or by venipuncture within the first 24 hours after birth to determine the MBL serum level by enzyme-linked immunosorbent assay (ELISA).
- Complete blood count with differential leukocytic count.
- CRP quantitative assay.
- Blood culture, when clinically indicated.
- Tracheal aspirate culture was performed when clinically indicated.

4- Chest x-ray, when clinically indicated.

All neonates were followed up for development of clinical symptoms and signs and laboratory evidence of sepsis and statistical tests were done to determine whether low MBL levels were associated with increased risk of neonatal sepsis.

The results of our study were:

- Infants who developed sepsis had their serum MBL levels significantly lower than those of the control group.
- MBL levels were highly significantly lower in full-term patients than full-term control.
- Although the MBL levels were lower in preterm patients than preterm control; this difference was not statistically significant.
- MBL serum levels were comparable in preterm and full-term neonates in both patient and control groups.
- MBL serum levels had no effect on the mortality in the studied neonates.
- ROC analysis of the data showed that the best cutoff MBL value for the risk of sepsis was 0.965 µg/ml (sensitivity = 71%; specificity = 64%; area under the curve = 0.712).

- MBL serum levels correlated positively with gestational age and birth weight in the control group. This correlation was not detected in the patient group.

Conclusion:

Neonates with low MBL serum levels at birth are at increased risk of sepsis especially in full-term neonates.

MBL levels had no effect on the mortality in neonates with sepsis.

MBL levels are related to gestational age and birth weight in the control group.

The best cutoff value of MBL for the risk of sepsis was 0.965 µg/ml with sensitivity 71% and specificity 64%.