SUMMARY AND CONCLUSIONS

Hyperbilirubinemia is a frequent morbidity of newborn infants, is the primary reason for discharge delay.. Phototherapy is widely used in neonatal units for hyperbilirubinemia treatment. Although phototherapy usually controls hyperbilirubinemia successfully, it is not without side effects – some of which are as yet unknown.

The aim of the study is to investigate the influence of the use of phototherapy in treatment of neonatal hyperbilirubinemia on the level of TNF -α and IL-6. To achieve this target, 25 term newborns with hyperbilirubinemia prospected to receive phototherapy were recruited. They included 13 males (52.0 %) and 12 females (48.0 %) with a mean gestational age of 37.8 weeks. In addition, there were 12 age and sex matched healthy controls.

Comparison of the demographic characteristics between patients and controls shows no statistically significant differences between patients and controls regarding gestational age, postnatal age and birth weight. However, patients had significantly higher frequency of birth by CS when compared with controls.

Comparison of the laboratory findings between the studied groups had revealed non-significant differences among HB and RBCs levels when compared before phototherapy , 72 h of starting phototherapy and 72h of stopping phototherapy , however there was a significant difference among WBCs , platelets and total bilirubin levels .

Comparison of TNF-α levels before phototherapy, 72 hours after phototherapy and 72 hours after cessation of phototherapy showed a significantly higher levels of TNF-α levels measured 72 hours after phototherapy. Comparison of IL-6 levels before phototherapy, 72 hours after phototherapy and 72 hours after cessation of phototherapy showed no significant difference among IL-6 levels.

The results demonstrate that in addition to the well-known positive effect of phototherapy on the neonatal serum bilirubin level, this treatment affects the function of the immune system in newborns via alterations in TNF-α production while had no effect on the IL-6 level.