# Summary

Jaundice is an important problem in the first week of life. It is a cause of concern for the physician and a source of anxiety for the parents. Although most jaundiced infants recover without any serious problems, high bilirubin levels may be toxic to the developing central nervous system and may cause neurological impairment even in term newborns.

Before discovery of phototherapy, Exchange transfusion was the first intervention used in the treatment of severe hyperbilirubinaemia to prevent kernicterus in infants with rhesus iso-immunisation. Unfortunately, there are a number of potential complications of this technique, such as cardiovascular collapse, biochemical disturbances and infection.

Phototherapy is now considered to be the standard and the most commonly used treatment in the management of neonatal hyperbilirubinemia regardless of its etiology. Phototherapy is used to prevent TSB levels from reaching a level at which exchange transfusion is recommended.

Yet neonates treated with phototherapy may suffer from side effects e.g. skin rash, loose stool, hyperthermia, fluid loss and bronze baby syndrome. A lesser known complication of phototherapy in neonates is hypocalcaemia.

The present study was conducted for assessment of hypocalcaemia in neonates treated with phototherapy. It was conducted on 40 jaundiced neonates:

**A).** 25 jaundiced neonates receiving phototherapy only for treatment of neonatal hyperbilirubinemia.

**B).** 15 healthy neonates were taken as control group.

All cases chosen fulfilled the following criteria:The age ranged between 1 to 7 days, required management with phototherapy only and Fed with full strength formula

Newborn infants with neonatal jaundice who were managed with exchange transfusion or venous nutrition therapy were excluded. Also any infant suffering from neonatal hypocalcaemia before phototherapy , respiratory distress, transient tachypnea of newborn, infant of diabetic mother, infant with jaundice lasting more than 14 days, cow milk fed infants, neonatal sepsis, congenital anomalies and preterm newborns.

All of the cases of study were subjected to Complete history taking, Physical examination and the Following Laboratory Investigation: , Blood group and Complete blood count (CBC), Reticulocytic count and Haemoglobin level for all cases. Total serum Calcium level was measured at 0 hour and after phototherapy for study group and at 0 hour and at 48 hour for control group. Serum bilirubin level was also measured before and after phototherapy for study group and at examination for control group.

Our results showed that there was a highly statistically significant difference between the serum calcium levels after phototherapy and serum Ca level before phototherapy in study group while in control group there was no statistically significant difference between serum Ca level at 0 hour and at 48 hour **.**

Our study showed that there is a direct relation between duration of exposure to phototherapy and its hypocalcaemic effect.

## Conclusion and recommendation

According to our study, it was observed that phototherapy induces considerable decline in serum Ca level in icteric newborns, and this decline is in direct relation to the duration of phototherapy that icteric neonates exposed to it ,and there was no significant correlation between serum Ca level and sex, weight or serum bilirubin level of jaundiced neonates.

None of our cases showed manifestation of hypocalcemia. Our results were the same observed by the others. As a result to our study, we recommend close observation and laboratory follow up to all icteric neonates treated by phototherapy for fear that Ca level declines down to the threshold of hypocalcaemia and symptoms and signs of hypocalcaemia appear.