Double vs single sided LED phototherapy for neonatal jaundice and role of neonatal age

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Methods: retrospective observational study in a community hospital in Australia was conducted. Associations between type of phototherapy management (biliblanket vs biliblanket plus one lamp vs biliblanket plus 2 lamps) and rate of serum bilirubin (SBR) decline, duration of phototherapy, and length of stay (LOS) were estimated using the general linear mixed model or linear regression.

Results: 82 of 102 neonates diagnosed with non-haemolytic jaundice between 1st June 2016 and 31st August 2017 were included in final analyses.

- LOS for neonates treated for jaundice during their first hospital admission did not statistically significantly vary by phototherapy type (p=0.06).
- SBR rate of decline increased as surface-area of phototherapy increased (p<0.001) with the fastest decline seen in maximal double-sided phototherapy.
- Estimated duration of phototherapy did not vary by phototherapy type but did vary by age at initiation of phototherapy (p=0.006), with 16 fewer hours of phototherapy if commenced at ≥72 to <96hrs versus ≥24 to 48hrs of age (difference -16.4hrs, 95% CI -29.1 to -3.7hrs).

Conclusions:
- Older neonates with neonatal jaundice require shorter phototherapy duration.
- Maximal LED double-sided phototherapy reduces SBR faster but there is no association with LOS.

Purpose: There is high variability in the use of phototherapy to manage neonatal jaundice. Most evidence compares conventional vs LED phototherapy. This study aimed to evaluate the associations between type of LED phototherapy intervention and hospital and patient related outcomes in term neonates with non-haemolytic jaundice.

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