

Systematic review of the effect of reflective materials around a phototherapy unit on bilirubin reduction among neonates with physiologic jaundice in developing countries

ABSTRACT

Objective: To identify the efficacy and safety of the use of various cost-effective reflective materials around phototherapy units to reduce the duration of phototherapy and hasten the reduction of bilirubin among neonates with physiologic jaundice. Data Sources: A systematic review of randomized controlled trials identified from searches in the Cumulative Index to Nursing and Allied Health Literature, ScienceDirect, Embase, and the Cochrane Library with the use of keywords, MeSH terms, operators, and the review of reference lists of retrieved articles. Study Selection: From a total of 186 studies initially screened, five were eventually included in this analysis. Data Extraction: Two authors independently reviewed each study with a standard template. Review parameters included the quality of each study based on the Physiotherapy Evidence Database scale and the Consolidated Standards of Reporting Trials guidelines. Data Synthesis: All studies were generalizable and were rated as high quality on the Physiotherapy Evidence Database scale; one study scored 8 points, and the other four scored 6 points each. The reflective materials used in these studies included the following: white 100% cotton cloths (one study), white plastic covers (two studies), underpads (one study), and silver fabric cloth (one study). Pooled analysis of three studies indicated that reflective materials significantly reduced the duration of phototherapy with a large effect size of 0.82 ($p = .04$). Pooled analysis of another three studies indicated that the mean decrease of the total serum bilirubin 4 hours after the initiation of phototherapy was significantly greater when reflective materials were added (mean difference of 11.39 $\mu\text{mol/L}$, 95% confidence interval [2.26, 20.52 $\mu\text{mol/L}$], $p = .01$). Conclusion: The addition of reflective materials to phototherapy units may be therapeutic for neonates with physiologic jaundice.