

Oral Defense Announcement

University of Missouri – St. Louis Graduate School

An oral examination in defense of the dissertation for the degree
Doctor of Nursing Practice with an emphasis in Pediatric Nurse Practitioner

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Neonatal Hyperbilirubinemia and Phototherapy: The Implementation of Seminal Clinical Practice Guidelines

Date: July 10, 2024

Time: 12:00 pm

Place: Remote

Abstract

Problem: On a postpartum care and pediatric unit from February 2022 to December 2023, the average monthly percentage of neonatal patients greater than 35 weeks gestation with hyperbilirubinemia who were treated with phototherapy before it was medically supported by the current guidelines was 42.855% (N=668). The department's goal is to decrease this number to 10%. Initiation of phototherapy with a subthreshold bilirubin level exposes many infants to an unnecessary treatment modality that can prolong the infant's length of stay in the hospital and can be associated with adverse effects, such as maternal-infant bonding and breastfeeding rates.

Methods: The study utilized a quasi-experimental before-after design and was guided by the Plan-Do-Study-Act framework. A retrospective chart review was used to assess the rate of subthreshold phototherapy initiation before and after the implementation of the quick-reference cards from November 2023 to April 2024.

Results: The study included 77 neonates ($n = 77$); 39 infants were in the pre-implementation group, and 38 were in the post-implementation group. Before the implementation of the quick-reference cards, the rate of subthreshold phototherapy was 30.77% ($n = 12$). After the implementation, the rate of subthreshold phototherapy was 42.11% ($n = 16$). A Chi-Square Test found that the number of infants who underwent subthreshold phototherapy did not significantly differ based on the implementation of the quick-reference cards ($p = .30$). A Two-Tailed Mann-Whitney test revealed that there were insignificant differences in the length of stay in hours between the groups of pre- and post-implementation of the reference cards, ($p = .476$). Of the infants who received subthreshold phototherapy initiation ($n = 28$, 36.36%), the most common reason documented by the provider for the initiation of phototherapy below the recommended TSB level was due to the rate of rise ($n = 11$, 39.39%). However, most providers did not document a reason for initiating subthreshold phototherapy ($n = 17$, 60.71%).

Implications for Practice: Implementing the quick-reference card did not significantly change the rate of subthreshold phototherapy initiation nor the infants' length of stay in hours. Findings support the need for future interventions to decrease the number of infants who undergo subthreshold phototherapy. A common reason for initiating subthreshold phototherapy was the rate of rise of the total serum bilirubin (TSB), which future studies should include in their investigations of phototherapy use. Additionally, the study revealed an opportunity to investigate the mother's Rh(D) immunoglobulin (RhIG) status during pregnancy to ensure the correct phototherapy threshold is utilized.

Defense of Dissertation Committee

Chairperson, Emily Winn, DNP, ARPN, PPCNP-BC, PMHS

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