

## **The Effects in Handling in Moderate to Late Preterm Infants Receiving Neonatal Intensive Care**

**Background** Providing a thriving environment to the premature infants receiving care in the neonatal intensive care unit is an ongoing area of interest to all stakeholders interested in infant health. With advances in monitoring technology, there are new methods to assess the effects of care and handling events on premature infants. In the United States, preterm births account for 10.2% of all births, with approximately 82% being moderate to late preterm (32-36<sup>6/7</sup> weeks' gestation)

**Purpose** To describe the effects of routine procedures on renal and cerebral oxygen perfusion that may have the potential to lead to adverse outcomes.

**Conceptual Model** A conceptual model was developed based on pertinent theoretical frameworks including General Adaptation Syndrome, Roy's Adaptation Model, and the Synactive Theory of Development. The developed conceptual model identifies the preterm neonate, the influence of the environment, and the adaptation processes exhibited by the neonate.

**Methodology** Descriptive design using prospective observation was utilized and was conducted in the neonatal intensive care unit at a Magnet<sup>®</sup> designated acute care hospital. Moderate-late preterm infants were observed for a continuous maximum seven-hour period capturing two consecutive care episodes. Moderate to late preterm infants were monitored by near-infrared spectroscopy and pulse oximetry. The handling events were logged into a time-stamped observation procedure log in Excel, and demographic information was collected.

**Result** The data were analyzed using analysis of variance (ANOVA), Kruskal Wallis, multiple comparisons test, and multiple linear regression models in the statistical analysis. The results of this study found that reductions in cerebral and renal oxygen saturation were significantly greater in neonates exposed to clustered care procedures. Similar results were also found with systemic oxygen saturation and heart rate. Clustered procedures that contained a potentially painful tissue-damaging procedure produced near identical changes in cerebral, renal, and systemic oxygenation and heart rate to clustered procedures that did not include a potentially painful procedure.

**Conclusion** The results suggest that care delivery to premature neonates may need to be modified. However, despite the statistical significance of these results, the clinical significance is not yet known. A larger sample size as well as an examination of specific outcome measures (biochemical markers of hypoxia, weight gain, number of days in the hospital, etc.) are required.

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