Multi-Sensory Stimulation Helps Infants with Brain Injuries

A combination of tactile, visual, auditory and vestibular (rocking) interventions prove beneficial for pre-term infants diagnosed with prenatal brain injury, according to the study "Developmental Intervention for Preterm Infants Diagnosed with Periventricular Leukomalacia." The multi-sensory interventions were found to increase the infants' heart and respiratory rates, and decrease their average hospital stays.

The study was conducted by researchers at the University of Illinois' College of Nursing, and was first published in the journal *Research in Nursing & Health* in 1999. Periventricular leukomalacia (PVL) is an injury to the immature brain, the result of an interruption in blood flow to brain tissues during or after delivery. It puts infants at risk of cerebral palsy and can lead to a delay in infant development and behavioral response changes.

Thirty infants diagnosed with PVL, at gestational ages (the age of the child from the mother's last menstrual period) of 24 to 33 weeks, were randomly placed in either a control group or an experimental group. The control-group infants received the same developmentally supportive care that was provided for all infants.

Infants in the experimental group received twice-daily multi-sensory stimulation (tactile, auditory, visual and vestibular) for 15 minutes, five days a week for one month, or until discharge from the hospital. The first 10 minutes consisted of light massage, which was followed by five minutes of rocking. While administering the massage, a research assistant would also speak to the infant and give eye-to-eye contact, thereby providing both auditory and visual stimuli. The interventions were tailored to individual infant behavior and responsiveness.

Assessments included measurements of heart and respiratory rate, body temperature and muscle tone; the Brazelton neonatal behavioral assessment scale which measures short-term behavioral responses; and the Bayley scales of infant development, which assess sensory-perceptual abilities.

Study results indicated that infants receiving the multi-sensory interventions experienced increases in heart and respiratory rate, indicating that they learned how to respond to environmental challenges more quickly, as compared with the control group. They were also more alert and active than those in the control group, and were discharged an average of nine days earlier from the hospital than control-group infants, who stayed in the hospital for 32 days. Researchers surmised that the early discharge might have been the result of infants being more alert (and thus more efficient) during feedings, which followed the interventions.

"Future research on post-intervention feeding and efficiency might further document beneficial effects" of multi-sensory interventions, the study authors concluded.