INFANT MASSAGE AS A STRESS MANAGEMENT TECHNIQUE FOR PARENTS OF EXTREMELY PRETERM INFANTS

Authors: Rachel A. Silver SPT, BS, CISSN; *University of North Carolina at Chapel Hill*
T. Michael O'Shea, MD, MPH*; University of North Carolina at Chapel Hill*
Dana B. McCarty PT, DPT, PCS; *University of North Carolina at Chapel Hill*

Introduction/Purpose: Research has previously indicated that parents, especially mothers, of preterm and extremely preterm infants, experience increased stress and anxiety as a result of their child's condition and that stress/anxiety is associated with worse long-term developmental and behavioral outcomes in their infants. Teaching mothers to perform infant massage on their preterm infants decreases stress, as reported by the mother, and improves parent-infant attachment. The aim of this study was to evaluate the mother's stress using a biological marker (salivary cortisol) before and after a massage education session with the mother.

Methods: This data was collected as part of the TEMPO (Therapist Education and Massage for Parent-Infant Outcomes) Study, which was a prospective single group, non-randomized study completed in the Neonatal Critical Care Center at UNC Children's Hospital. Only infants who were born extremely preterm (<28 weeks gestation) were eligible for inclusion. Infant massage (IM) was one of the interventions provided in this study and is the focus of this investigation.

Physical therapists leading the intervention monitored vitals throughout in order to ensure that the infant remained physiologically stable and appropriate for massage. While the physical therapist demonstrated how to perform massage on a doll and provided verbal cues, parents followed along and massaged their infants. The massage techniques consisted of moderately firm effleurage strokes to the extremities and gentle passive muscle elongation lasting 10-20 minutes in accordance with the White-Traut ATVV protocol. Salivary cortisol levels were collected by the principal investigator or other research coordinators via buccal swab immediately before and after the second of two massage education sessions. For parents of twins, the first salivary cortisol sample was collected before massage with either child, and the second salivary cortisol sample was collected after massage with both infants was completed.

Of the 32 parent-infant dyads enrolled, 6 were transferred to outside hospitals and 2 infants died prior to massage education intervention. One mother declined salivary cortisol testing and one mother could not be present for massage session, leaving 22 parent-infant dyads who completed this study.

Results/Conclusion: With the remaining 22 parents, results of a paired t-test revealed a significant difference in pre- to post-cortisol levels (18.01 ng/dl, [CI=2.6, 33.5] p=0.03). Changes in salivary cortisol ranged from an increase of 55 ng/dL to a decrease of 108 ng/dL. The cortisol test cannot detect values <50 ng/dL, and 6 mothers measured <50 ng/dL at pre- and post-IM. In the remaining 16 samples with cortisol levels >50 ng/dL, average percent change from pre- to post-IM was 20.1%, which exceeds the recommended 15.5% threshold to identify "responders" vs. "non-responders," indicating a true stress response. T-test analyses demonstrated there was a significant decrease in salivary cortisol levels after participating in infant massage (p = 0.016) among the responders. Given these preliminary findings, results from studies examining salivary cortisol changes during skin-to-skin care, and studies demonstrating altered cortisol levels in parents of children with chronic health needs, we anticipate regular maternally-administered massage will lead to reduced salivary cortisol, which will, in turn, contribute to reduced maternal anxiety and depressive symptoms. Additional research is needed to establish a correlation between salivary cortisol changes and clinical symptoms of stress in parents of preterm infants.