Newborn Abdominal Massage to Prevent Hyperbilirubinemia: A Pilot Randomized Controlled Trial

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Background

- Hyperbilirubinemia is the most common cause for hospital readmission in infants younger than 14 days.
- The American Academy of Pediatrics recommends bilirubin screening in all newborns and treatment with phototherapy.[1]
- Hyperbilirubinemia requiring phototherapy affects 5-10% of infants born ≥35 weeks.[2,3]
- Phototherapy is often delivered in the inpatient setting resulting in prolonged hospitalization or readmission in the first week of life.[4]
- Phototherapy treatment can interrupt breastfeeding routines and increase insensible fluid losses
- Newborn abdominal massage is a simple intervention studied in the Middle East and Asia; yet not well investigated in the United States[5]

Objectives

1. To determine the acceptability of newborn massage intervention and its feasibility
2. To determine the extent to which a structured newborn abdominal massage can affect infant bilirubin excretion and lower bilirubin level away from the AAP hour-specific phototherapy treatment threshold

Methods

- Randomized controlled trial comparing newborn abdominal massage education to reading with newborn (control)
- Pending approval by UC Davis IRB & registration at Clinicaltrials.gov
- Study cohort: 30 dyads of late preterm/term mothers and their infants

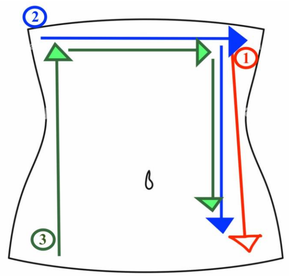
Inclusion criteria:

- Newborn admitted to the well newborn/postpartum care unit at UCDMC
- < 24 hours of age

Exclusion Criteria:

- Infant has already received phototherapy
- mother incarcerated
- infant unexpected to discharge into mother's care
- inability to speak or read in English

Abdominal Massage



2:1 Intervention and Attention Control

In-hospital Phase

Intervention Group	Control Group
20 Mother-Infant Dyads	10 Mother-Infant Dyads
Education on abdominal massage techniques. Recommended to massage baby for 5 minutes, 3 times a day until 5 days after birth.	Discussion about reading to infants

7-14 days after intake

Follow-up Phase

1. Transcutaneous bilirubin (TcBili) levels and infant stool frequency will be monitored throughout hospitalization per usual hospital care
2. RedCap Survey about use of newborn abdominal massage (frequency in both groups), their experience, whether their infant received phototherapy and any adverse outcomes.
3. Chart review documenting baby's bilirubin levels, information about their feeding, any re-admission or outpatient visits, etc.

The 5-minute massage includes stroking the infant's abdomen:
(1) Up to down on the left side of the abdomen
(2) From the upper right-hand corner horizontally across then down to the lower left quadrant
(3) Then in a motion starting from the bottom right quadrant, up, across, then down to lower left quadrant), and lastly the infant's legs are lifted up and knees bent. The gentle abdominal massage techniques are repeated for a total of 5 minutes per session.

Progress

- Pending recruitment of 30 mother-infant dyads. Plan for recruitment in place. Randomization envelopes created.

Expected Results

Abdominal massage is feasible and may contribute to satisfactory levels with care. Based on international studies, it has the potential to improve bilirubin excretion and earlier first bowel movement is expected in infants undergoing abdominal massage.

Acknowledgments

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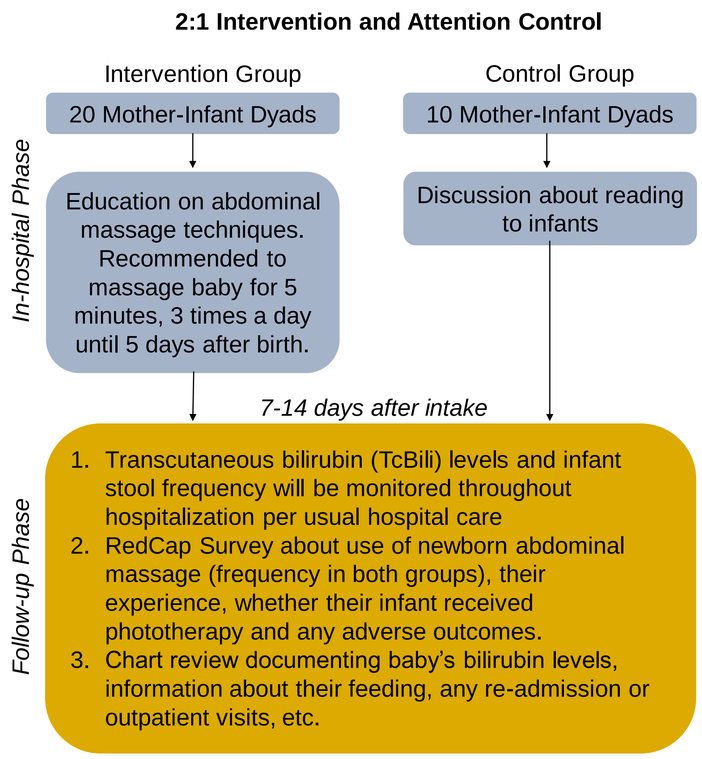
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