

Kangaroo Mother Care effect on crying time during clustered painful procedures in full term neonates

**Raouth R. Kostandy,
PhD, MSN, RN**



Disclosure

- This author disclose no relevant financial interests
- Objectives:
 1. Describe Kangaroo Mother Care and its effects on managing neonatal pain
 2. Discuss the study and its results
- Cleveland State University, School of Nursing
- This research study was Funded by The University of Akron, College of Nursing Research Award and The University of Akron Faculty Research Grants and Fellowships

Background

- Healthy full term neonates face many painful procedures immediately after birth.
- Evidence exist that neonates perceive and respond to pain (Anand, 2008; Simons & Tibboel, 2006).
- Unrelieved procedural pain is related to detrimental physiologic and behavioral outcomes such as altered pain responses later in life (Grunau, Holsti & Peters, 2006; Hermann, 2006). Thus, pain need to be minimized.

Background

- Kangaroo Mother Care (KMC) is an effective non-pharmacologic intervention for managing pain of a single procedure. KMC relieves pain from one injection (Chermont et al., 2009; Kostandy et al., 2013) or heel sticks (Bulfone et al., 2011; Okan et al., 2010).
- There is lack of information about KMC effects on clustered painful procedures.

Purpose

The purpose of this study was to test the effect of KMC on crying time during clustered painful procedures (Hepatitis B vaccine injection and metabolic screening heel stick) in healthy full term neonates.

Methods

- **Design:** A pilot randomized controlled trial.
- **Setting:** Postnatal department of a tertiary urban hospital.
- **Sample:** Sixteen mother-neonate dyads were randomly assigned to either KMC group or control group.

Methods cont.

□ Inclusion Criteria:

- gestational age 37-42 weeks
- birth weight equal or more than 2,500 grams
- 5-minute Apgar score of at least 7
- judged clinically healthy
- product of an uneventful and spontaneous vaginal delivery or planned caesarean section, and
- mothers agree to provide KMC

□ Exclusion Criteria:

- evidence of congenital abnormalities or medical complications
- require oxygen administration or ventilatory support
- mothers were substance abusers during this pregnancy

Methods cont.

Procedures:

- Obtaining IRB approvals.
- Identifying potential subjects.
- Obtaining maternal written informed consent.

Methods cont.

- Randomization with sealed envelopes in the mother's room:
 - KMC group neonates were held in KMC position before (10-15 minutes), during (injection and heel stick), and after (30 minutes) the clustered painful procedures.
 - Control neonates were taken in their cribs to the nursery. They were tightly swaddled with a warm blanket before (10-15 minutes), during (injection and heel stick), and after (30 minutes) the clustered painful procedures.

Methods cont.

- A video camera was set up to record the whole procedure.
- After data collection was done, a research assistant viewed all the video tapes and recorded the crying time.
- One staff nurse administered all painful procedures for neonates in both groups.

Methods cont.

- **Outcome Variable:** Crying time was defined as the number of mean seconds of crying time for each phase.
- **Statistical analysis:**
 - Data were analyzed by Repeated measures analysis of variance and descriptive statistics.
 - Alpha was set at 0.05.

Results

- Neonatal demographic characteristics:
 - 68.8% were female
 - 62.5% were white
 - 93.8% had a 5-minute Apgar score of 9
 - 56.3% were breastfed

Results cont.

- No significant differences were found between groups during heel stick. KMC group had a $M=35.4$ ($SD=24.4$) vs Control $M=20.5$ ($SD=19.5$).
- No significant differences were found between groups during injection. KMC group had a $M=61.7$ ($SD=17.7$) vs Control $M=60.8$ ($SD=14.8$).

conclusions

- In this pilot study, KMC didn't have an effect on crying time during clustered painful procedures.
- Further studies with a larger sample size are needed to establish KMC role in the management of pain from clustered painful experiences.
- All this study neonates cried when they received the Hepatitis B Vaccine injection.
- Crying remains an indicator of pain and its use as an outcome measure can continue.

Noteworthy points

- At the time this study was conducted, the routine practice in the unit was to take all neonates to the nursery to perform these painful procedures.
- Only one nurse participated in this study.
- One neonate in the KMC group cried a lot during the painful procedure, the nurse told the mother “oh boy, am I glad that you are holding him. I’m not sure what he would of done without you”



References

- Anand, K.J.S. (2008). Analgesia for skin-breaking procedures in newborns and children: what works best? *CMAJ*, 179(1),11-12.
- Bulfone, G., Nazzi, E., & Tenore, A. (2011). Kangaroo Mother Care and conventional care: A review of the literature. *Professioni Infermieristiche*, 64(2), 75-82.
- Chermont, A.G., Falcão, L.F., de Souza Silva, E.H., de Cássia Xavier Balda, R., Guinsburg, R. (2009). Skin-to-skin contact and/or oral 25% dextrose for procedural pain relief for term newborn infants. *Pediatrics*, 124(6), e1101-e1107.
- Grunau, R.V., Holsti, L., & Peters, J.W. (2006). Long-term consequences of pain in human neonates. *Seminars Fetal Neonatal Med*, 11(4), 268-275.
- Hermann, C., Hohmeister, J., Demirakca, S., Zohsel, K., & Flor, H. (2006). Longterm alteration of pain sensitivity in school-aged children with early pain experiences. *Pain*, 125, 278-285.
- Kostandy, R.R., Anderson, G.C., & Good, M. (2013). Skin-to-Skin Contact Diminishes Pain From Hepatitis B Vaccine Injection in Healthy Full-Term Neonates. *Neonatal Network*, 32(4), 274-280.
- Okan, F., Ozdil, A., Bulbul, A., Yapici, Z., & Nuhoglu, A. (2010). Analgesic effects of skin-to-skin contact and breastfeeding in procedural pain in healthy term neonates. *Ann Trop Paediatr.*, 30(2),119-128.
- Simons, S. & Tibboel, D. (2006). Pain perception development and maturation. *Semin Fetal Neonatal Med.*, 11,227-231.