

Nonsynostotic plagiocephaly Prevention strategies in child health care

Akademisk avhandling

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Avhandlingen baseras på följande delarbeten:

- I. Lennartsson, F, Wennergren, G & Nordin, P. Reliable Assessors of Infant Cranial Asymmetry in Child Health Care, *Open Nurs J*, 2015; 9, 33-41.
- II. Lennartsson, F, Nordin, P & Wennergren, G. Teaching Parents How to Prevent Acquired Cranial Asymmetry in Infants, *J Pediatr Nurs*, 2016; 31(4): e252-61.
- III. Lennartsson, F, Nordin, P & Alhberg, BM. Integrating now knowledge into practice: An evaluation study on a continuing education for Swedish child health nurses on non-synostotic plagiocephaly, *Nurs Open*, 2018; 5(3): 329-40.
- IV. Lennartsson, F & Nordin, P. Nonsynostotic plagiocephaly: a child health care intervention in Skaraborg County in Sweden, *BMC Pediatr*, 2019; 19(48): 1-12.

**SAHLGRENKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER
AVDELNING FÖR PEDIATRIK**



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Abstract

The aim of this project was to assess whether it is possible to prevent nonsynostotic plagiocephaly while still promoting safe infant sleeping practices. A continuing education including guidelines was developed for child health nurses, and a clinical intervention and three supporting studies were planned. Nurses were recruited and allocated to two groups. Intervention group nurses were educated about nonsynostotic plagiocephaly while control group nurses were not. Then nurses recruited infants to the clinical intervention.

Five individuals recruited externally were trained to assess infant cranial asymmetry and then reliability-tested. Results indicate substantial strength of intra- and inter-rater assessor agreement. A survey was conducted to compare what information intervention and control group parents received from their nurses during early infancy. A significantly higher proportion of intervention group parents compared to control group parents were aware of the three regular and five newly introduced recommendations. The continuing education for nurses was evaluated by asking intervention and control group nurses and parents two open-ended questions regarding what they did to prevent and to reverse cranial asymmetry. Intervention group nurses reported providing regular and newly introduced re-positioning strategies to parents, and intervention group parents who perceived severe cranial asymmetry at 3-4 months reported implementing regular and new re-positioning strategies in their reversal efforts. The effect of the intervention on infant cranial shape was evaluated by assessing cranial asymmetry in 176 intervention group and 92 control group infants at 2-, 4-, and 12-months of age. It was four times more common that cranial asymmetry at two months reversed by four months in the intervention group compared to the control group infants (OR = 4.07 [1.23; 13.44], $p = 0.02$) when adjusted for parental awareness of written recommendations from their nurse. An infant's risk of having asymmetry persist from two to 12 months was reduced nearly threefold in the intervention group (RR = 0.35, $p = 0.03$). However, preventing brachycephaly was difficult.

In conclusion, assessors were considered reliable and interchangeable; educating nurses increased parental awareness of recommendations and promoted integration of new re-positioning recommendations conducive to infant safety in practice; and the intervention was associated with early reversal, but brachycephaly prevention was difficult. The nurse education and prevention efforts need more research.

Keywords: Assessments, child health, education, infants, intervention, nonsynostotic plagiocephaly, nurses' instruction, parents, prevention, reversal