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Procedural pain in neonates: Do nurses follow national guidelines? A survey to Swedish neonatal units

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Abstract *Purpose:* To investigate if nurses at neonatal units in Sweden have adopted national guidelines when neonates are exposed to intravenous catheter, capillary heel prick, venepuncture and injections, to identify the frequency of documentation of pharmacological and behavioural treatments and to compare the answers from the nurses with results from an earlier national survey completed by the chief neonatologists at the same units.
Design and sample: Four nurses at a total of 44 neonatal units in Sweden, received questionnaires. A total number of 116 surveys were analysed (response rate 66%).
Main outcome and results: All units had written guidelines for prevention and treatment of pain. Behavioural treatments were used in every painful procedure in the study, but only1/5 used EMLA® often or always. There was a higher tendency to document the use of drugs than behavioural treatments. The chief neonatologist reported higher use of glucose than did nurses.
Conclusions: Swedish national guidelines are not used consistently in some neonatal units. There is a considerably larger cohort of nurses who use behavioural treatments, rather than using drugs when painful procedures are performed. It

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was also evident that it was more common to document the use of drugs than behavioural treatments.

Introduction

Invasive procedures are the most common reasons for pain in hospitalized infants. Carbajal et al. (2008) demonstrated that newborns on average were subjected to 12 painful procedures per day during the first two weeks of their Neonatal Intensive Care Unit (NICU) stay, mainly without analgesia. The pain caused by these procedures adds to the burden of stress in the neonate, causing a risk for short- and long term consequences (Abdulkader et al., 2008; Bouza, 2009).

The increasing insight that pain alleviation is a necessity in newborn care has lead to the creation of national and international guidelines for the management of newborn pain. Following the international document (Anand, 2001), early examples of national guidelines can be found in USA and Canada (American Academy of Pediatrics, 2006), Sweden (Larsson et al., 2002) and Australia (Royal Australasian College of Physicians, 2006). Typically, these guidelines have sections on pain assessment and non-pharmacological and pharmacological interventions. The non-pharmacological interventions aim at minimizing stress- and painful events, offering support like non-nutritive sucking and skin-to-skin contact and giving sweet solutions orally prior to minor painful procedures.

National guidelines should be transformed into local written guidelines at every unit providing care for newborn infants. Gharavi et al. (2007) showed that units with local guidelines will provide a higher frequency of pain treatment and documentation of pain. In Sweden 88% of the neonatal units had written pain guidelines 2008 (Eriksson and Gradin, 2008) compared to for example 15% in Australia (Harrison et al., 2006) and 44% in Austria, Switzerland and Germany (Gharavi et al., 2007).

A previous survey to the chief neonatologist at all Swedish NICUs revealed that behavioural (non-pharmacological) interventions were given before some skin breaking procedures at 53–95% of the units. Only one (3%) of the units reported using pharmacological interventions (EMLA cream), before subcutaneous injection. Oral glucose solution for the same procedures were given at 66–91% of the units (Eriksson and Gradin, 2008).

The purpose of this study was to investigate if nurses on neonatal units in Sweden followed the national guidelines for some painful procedures (peripheral venous catheter placement, capillary heel stick, venepuncture and s.c/i.m. injections), and secondly to investigate documentation of pharmacological and non-pharmacological pain-alleviating interventions. The results were compared with those of a preceding chief neonatologist survey (Eriksson and Gradin, 2008).

Methods

Design and setting

The study design was a semi-structured survey sent to a sample of nurses at every NICU in Sweden. The units were divided into four categories, from level A: university hospital with full neonatal intensive care services, to level B: county hospital with a neonatal intensive care unit, level C: county and general hospital with partial and short-time neonatal intensive care, to level D: hospital without neonatal intensive care, following the official Swedish ranking (National Board of Health and Welfare, 1997). Every head nurse received an information letter, four survey-forms and a pre-paid return envelope. The head nurses were asked to distribute the surveys to a representative sample of nurses that had been working at least six months at the unit. The surveys were provided with code-numbers to enable reminders and drop-out analysis. After two and four weeks reminders were sent to units that had not returned the forms. Totally 180 surveys were distributed, to all 45 units listed as providers of neonatal care in Sweden. According to Swedish legislation at the time of the survey, no research-ethical application was needed for a survey sent from the university to the staff at the unit. The informants were however instructed that participation was voluntary and that analysis and presentation of results would be done on a group-level where neither individual nurses nor units could be identified.

The survey that had nine open and 17 closed questions plus nine Likert-type questions (see Appendix 1) was developed from the earlier chief neonatologist-survey (Eriksson and Gradin, 2008). The survey was pilot-tested by two paediatric nurses before the final distribution.