by funding from Örebro University and Örebro University Hospital Research Foundation.

Conclusions: PEARL fulfils the need for a collaborative network for pain in early life researchers in the Nordic countries.

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Searching for protein biomarkers in pain medicine – Mindless dredging or rational fishing?

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Aims: Biomarker research seems to be somewhat controversial in pain medicine. Because pain is a subjective experience, renowned pain researcher Eija Kalso wrote in a 2004 *Pain* editorial that biomarkers for pain is an impossibility. However, in the same editorial, she also seemed to imply that what she called "biomarkers of (neuronal) activity in the nociceptive pathway" would be possible. Recently, I proposed the neologism "noci-marker" as a better term than "pain biomarker" for denoting attempts to find objective, measurable correlates to the neurobiological processes involved in different pain conditions. The purpose of the present conceptual work is to propose criteria for sensible hypothesis-generating research in the field of "noci-marker" research.

Method: Conceptual theoretical work, with examples from the literature.

Results: Criteria for sensible biomarker research in pathological pain conditions, together with examples from the literature, will be presented for discussion, including consideration of (work in progress):

- "Mirroring" rationale – which body fluid is studied? The example of saliva vs. cerebrospinal fluid.
- Time frame rationale – when is it sensible to look for what? The example of Cystatin C.
- Statistical considerations – univariate multiple testing vs. correlation structure of a whole data set. The example of multivariate data analysis by projection using SIMCA.
- The definition of patient cohorts – clinically and phenotypically.
- Relating findings to the literature and to systems biology. The example of Pain Networks.
- Reporting issues – how should the hypothesis-generating (explorative) nature of such studies be acknowledged?

Conclusions: Although it seems ethically dangerous and philosophically dubious to talk about "pain biomarkers", searching for biological correlates to pathological activity in the nociceptive pathways ("noci-markers") seems justified and conceptually possible.

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Effectiveness of smart tablets as a distraction during needle insertion amongst children with port catheter: Pre-research with pre-post test design

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Aims: Children who experience pain and anxiety while undergoing interventions or treatments during hospitalization at a young age can experience negative feelings which can influence how they experience health care in the future.

The purpose of the study was to evaluate the protocol of using a tablet computer as a source of distraction from pain and fear when children undergo needle insertion in a port catheter (port-a-cath®).

Methods: The study uses a quasi-experimental pretest-post test design with a sample of 14 children, 20 months to 16 years of age, 9 boys and 5 girls. Pain and fear were first evaluated without the distraction of a tablet computer. The second time pain and fear were evaluated while a tablet computer was used for distraction. The children evaluated their pain and fear with a 10 cm Numeric Rating Scale (NRS/VAS) and six faces scales in all cases except three. In those three cases the mothers evaluated the children's pain and fear with the NRS, the Faces scale, or the Legs, Activity, Cry, Consolability scale (FLACC).

Results: The Shapiro–Wilk test showed a significant distribution ($p < 0.05$) of pain and fear but most subjects did not feel any fear before the intervention. The mean score of pain was 2.90 (sd = 3.67) and the mean score for fear was 3.67 (sd = 3.76). No significant difference was found between pain and the fear prior to the intervention ($p = 0.09$). Children who felt fear prior to the intervention (n = 5) experienced significantly lower pain when a tablet computer was used ($p < 0.05$). No difference was found between pain and fear by age or gender. No difference in pain was found by the type of distraction ($p = 0.20$). All subjects where highly experienced with needle insertions and some of them had developed their own approach to deal with the intervention.

Conclusions: More extensive research is needed in this area.

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Postoperative oxycodone in breast cancer surgery: What factors associate with analgesic plasma concentrations?

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Aims: Parenteral oxycodone is increasingly used worldwide to manage perioperative pain. Oxycodone doses required for adequate analgesia vary significantly between individuals. Our