

Kliiniline küsimus nr 15

Kas postoperatiivses etapis lisaks farmakoloogilisele valuravile mittefarmakoloogiliste meetodite kasutamine vs mittekasutamine parandab ägeda valu ravi tulemust?

Tulemusnäitajad: *valu tugevus, valu vähenemine, lisavaluvaigisti vajadus (sh opiaadi vajadus), ärevuse vähenemine, patsiendi (eestkostja) rahulolu valuraviga, postoperatiivsete tüsistuste esinemissagedus*

Ravijuhendid

Kokkuvõte

PEDI-12:

Kõige rohkem informatsiooni on suunatud kujutluste tekitamise (guided imagery), tähelepanu kõrvalejuhtimise ja hüpnoosi kohta.

Protseduuride valu leevendamiseks vastsündinutel soovitatakse kehalist kontakti, imetamist ja muud imemist (nonnutritive sucking). Võib kasutada ka glükoosi või mõnda muud magusat lahust (other sweet solutions).

AU-10:

Glükoosilahus vähendab vastsündinutel kannatorke vereproovi võtmisega seotud vastust valule.

Rinnaga toitmine vähendab vastsündinul protseduuri valu.

Tähelepanu eemalejuhtimine, hüpnoos ja kombineeritud kognitiiv-käitumuslikud sekkumised vähendavad lastel ja noorukitel nõelaprotseduuridega seotud valu ja stressi.

EMLA (lidokaiin + prilokaiin) on tõhus nahale manustatav lokaalanesteetikum, kuid ja ametokaiin vähendab EMLAst rohkem nõela sisestamisega seotud valu lastel.

Vähevalulike protseduuride korral annab lokaalanesteetikumi nahale manustamine, inhaleeritav lämmastikoksiid (50%) või eelnevate kombinatsioon tõhusa ja ohutu analgeetilise toime.

Mõõdukalt valulike protseduuride korral on tõhus hüpnootiliste ja analgeetiliste ravimite kombinatsioon.

PEDI-12

Skin to skin contact and other forms of tactile stimulation have been shown to be effective for needle related procedural pain in neonates (21,22). There is growing evidence supporting the use of psychological interventions for a variety of acute pain indications. Psychological interventions for acute pain include a wide variety of physiological, behavioral, and cognitive techniques aimed at reducing pain and pain-related distress through the modulation of thoughts, behaviors, and sensory information. Some of the most strongly supported are guided imagery, distraction, and hypnosis (23).

- **Behavioral interventions** - based on principles of behavioral science as well as learning principles by targeting specific behaviors.
- **Cognitive interventions** - involve identifying and altering negative thinking styles related to anxiety about the painful situation, and replacing them with more positive beliefs and attitudes, leading to more adaptive behavior and coping styles.
- **Distraction** - includes cognitive techniques to shift attention away from the pain or specific counter activities (e.g., counting, listening to music, playing videogames, talking about something else other than pain or the medical procedure).
- **Hypnosis** - psychological state of heightened awareness and focused attention, in which critical faculties are reduced and susceptibility and receptiveness to ideas is greatly enhanced.
- **Relaxation** - state of relative freedom from anxiety and skeletal muscle tension, a quieting or calming of the mind and muscles.

PROTSEDUURIDE VALUTUSTAMINE

1. PEDI-12

Breast-feeding should be encouraged during the procedure, if feasible: Grade A

Nonpharmacological measures including **nonnutritive sucking**, **'kangaroo care'**, **swaddling/facilitated tucking**, **tactile stimulation**, and **heel massage** can be used for brief procedures: Grade A

Nonpharmacological measures including tactile stimulation, breast-feeding, non-nutritive sucking, 'kangaroo care', and massage of the heel can be used for heel prikk blood sampling: Grade A

Sucrose may contribute to pain response reduction in examination for retinopathy: Grade A

Sucrose or other sweet solutions can be used: Grade A

2. AU-10

Key messages

1. Sucrose reduces the behavioural response to heel-stick blood sampling in neonates (U) (Level I [Cochrane Review]).
2. Breastfeeding or breast milk reduces measures of distress in neonates undergoing a single painful procedure compared to positioning or no intervention (U) (Level I [Cochrane Review]).
3. Distraction, hypnosis, and combined cognitive-behavioural interventions reduce pain and distress associated with needle-related procedures in children and adolescents (S) (Level I [Cochrane Review]).
4. EMLA® is an effective topical anaesthetic for children, but amethocaine is superior for reducing needle insertion pain (N) (Level I [Cochrane Review]).
5. Topical local anaesthetic application, inhalation of nitrous oxide (50%) or the combination of both provides effective and safe analgesia for minor procedures (U) (Level II).
6. Combinations of hypnotic and analgesic agents are effective for procedures of moderate severity (U) (Level II).

Süsteemaatilised ülevaated ja RCTd

Süsteemaatilised ülevaated:

Leidus 1 ülevaateartikkel (Wente et al. 2013), kus kirjeldati EMOs kasutatavaid mitte-farmakoloogilisi meetodeid - tähelepanu kõrvalejuhtimine, asendi valik, glükoosilahus ja külmaravi.

Süsteemaatiline ülevaade külmaravi rakendamisest (Birnie et al. 2012) leidis, et meetod on sageli kasutatav, kuid uuringud ei ole metodoloogiliselt võrreldavad ning soovitusel külmaravi kasutamise kohta on erinevad.

Cochrane'i ülevaade (Shah et al. 2009) hindas imetamise / rinnapiima asendaja andmise mõju vastsündinu protseduuridega seotud valule. Leiti, et platseeboga võrreldes vähendas imetamine / rinnapiima asendaja tarbimine valu tugevust, kuid glükoosilahuse manustamine oli sama tõhus valuvaigisti kui rinnapiim.

Üks kirjanduse ülevaade (Campbell et al. 2014) vaatles glükoosilahuse kasutamise mõju vastsündinute valu tugevusele ja leidis, et tõenäoliselt on sellest protseduuride valu vähendamisel abi.

RCT

Glükoosilahus - Wilson et al. (2013) ei leidnud, et glükoosilahusest oleks võrreldes veega vastsündinute valu vähendamisel rohkem kasu.

Mängu ja muusika abil tähelepanu kõrvale juhtimisest on leitud laste ägeda valu puhul kasu olevat.

1. Campbell, N., et al (2014) „Oral sucrose as analgesia for neonates: How effective and safe is the sweet solution? A review of the literature“. Journal of Neonatal Nursing. Vol 20, Issue 6:247-282

The **objective** of this literature review was to [evaluate the safety and effectiveness of sucrose as analgesia for neonates](#). The review synthesizes the evidence relating to an emerging common clinical practice to assist practitioners to provide evidence based care. A search of published articles was undertaken with [46 articles](#) returned of which ten met the inclusion criteria. Newborns needing intensive care are routinely subjected to invasive procedures that cause distress and pain but numerous studies have shown that pain relief remains poorly managed. Sucrose is becoming the accepted non-pharmacological intervention for managing acute procedural pain. Administration has been associated with calming effects and reductions in observed pain behaviours in preterm and term infants aged up to 1 year. [This review found that in preterm and full term neonates up to the first month of life there is evidence to suggest that oral sucrose, with or without non-nutritive sucking, is effective and safe for reducing pain responses. A number of studies found that other non-pharmacological methods such as breast-feeding and non-nutritive sucking can also be effective.](#) It is recommended that future studies investigate the potential effects after continuous use of sucrose during painful procedures for very preterm and sick infants.

2. [Wente, S., et al \(2013\)](#). Nonpharmacologic pediatric pain management in emergency departments: A systematic review of the literature“ *Journal of emergency nursing*. 39:140-150

Introduction: Children account for numerous ED visits each year, with the majority of children reporting pain or requiring painful procedures. Nonpharmacological interventions are an essential part of pain management.

The **purpose** of this review was to examine what nonpharmacological interventions EDs are using for pain management in children ages birth to 18 years.

Methods: A [systematic literature search](#) was conducted to examine nonpharmacological interventions used for pain management of children in EDs.

Results: [14 articles](#) met the inclusion/exclusion criteria. 10 studies used [distraction](#), 2 examined the use of [sucrose](#), 1 explored [cold application](#), and 1 looked at [parental holding and positioning](#). Benefits of using nonpharmacological methods included decreased pain, distress, and anxiety reported by the parent, child, and/or observer.

Discussion: [Findings suggest nonpharmacological interventions such as distraction, positioning, sucrose, and cold application may be helpful in pediatric pain management in the ED.](#) Nurses can implement these methods independently when caring for children and their families. In addition, nonpharmacological methods are relatively inexpensive to organizations.

3. [Birnie, K.A., et al \(2012\)](#). „Contemporary Use of the Cold Pressor Task in Pediatric Pain Research: A Systematic Review of Methods“. *The Journal of Pain*, Vol 13, No 9 (September), 2012: pp 817-826

The [cold pressor task \(CPT\)](#) is an ethical experimental pain task widely used by pediatric pain researchers to examine a variety of important theoretical and clinical questions.

The **purpose** of this [systematic review was to describe contemporary use of the CPT in pediatric pain research to identify possible methodological and procedural inconsistencies and inform future research.](#)

Methods: All papers using the CPT to examine pain-related outcomes in children <18 years old published after 2005 were identified, 2005 being when published pediatric CPT studies were last reviewed and guidelines for pediatric use of the CPT were published. Information related to samples, CPT methodology, and pain outcomes was recorded.

Results: 36 published papers, involving 2,242 children (aged 3–18 years) from both healthy and clinical samples, met review inclusion criteria. Several aspects of CPT methodology with significant potential to impact pain outcomes were found to be inconsistently implemented and reported, including water temperature, use of informed versus uninformed ceilings, and the presence of observers during the CPT. Self-report child pain intensity and pain tolerance were common outcomes. A number of refinements for use of the CPT in pediatric pain research are suggested.

Perspective: The cold pressor task is a commonly used experimental method in pediatric pain research. This systematic review reveals important methodological inconsistencies in its use and suggestions for improvements to previously published guidelines.

4. Cooper, S., et al. (2012). „Promoting the use of sucrose as analgesia for procedural pain management in neonates: A review of the current literature“. Journal of Neonatal Nursing. 18:121-128

Assessment and treatment of pain in neonatal nursing are important areas for consideration and our practice in relation to pain management must be evidence based. Unlike adults or children, neonates cannot tell us when they are in pain and it is therefore our responsibility as caregivers to recognise when they are and to act upon it using evidence based principles. One area that has attracted much research interest over the past few years is the use of sucrose as analgesia for procedural pain management in neonates. This practice, in the author's opinion, is certainly not utilised across all neonatal units and so is certainly not standardised or universal practice by any means at present within the UK (Robins, 2007) or indeed elsewhere. It is acknowledged that practice guidelines exist but may not be used reliably and consistently (Losacco et al., 2011, Meek, 2012). This paper will firstly discuss what is known about sucrose use in neonatal care followed by a review of the current literature in this specific area of pain management. An overview of available protocols shall be discussed and recommendations for practice development will be put forward in view of widening the knowledge, understanding and ultimately the actual use of sucrose for procedural pain in neonates. Optimising comfort and a pain-free environment for all neonates and families in our care is the universal goal.

3. Shah PS., et al (2009) „Breastfeeding or breast milk for procedural pain in neonates.“ The Cochrane Collaboration and published in The Cochrane Library 2009, Issue 1

Background: Clinical studies have shown reduction in changes in physiological parameters and pain score measurements following pre-emptive analgesic administration in situations where the neonate is experiencing pain or stress. Non-pharmacological measures (such as holding, swaddling and breastfeeding) and pharmacological measures (such as acetaminophen, sucrose and opioids) have been used for this purpose.

Objectives: to evaluate the effectiveness of breastfeeding or supplemental breast milk in reducing procedural pain in neonates. The secondary objective was to conduct subgroup analyses based on the type of control intervention, gestational age and the amount of supplemental breast milk given.

Search methods: literature search using the cochrane central register of controlled trials (central) (the cochrane library 2011, issue 10), medline (1966 to february 2011), embase (1980 to february 2011), cinahl (1982 to february 2011), abstracts from the annual meetings of the society for pediatric research (1994 to 2011), and major paediatric pain conference proceedings. We did not apply any language restrictions.

Selection criteria: RCTs or quasi-rcts of breastfeeding or supplemental breast milk versus no treatment/other measures in neonates were eligible for inclusion in this review. The study must have reported on either physiologic markers of pain or validated pain scores.

Data collection and analysis: We assessed the methodological quality of the trials using the information provided in the studies and by personal communication with the authors. We extracted data on relevant outcomes, estimated the effect size and reported this as a risk ratio (rr), risk difference (rd) and weighted mean difference (md) as appropriate.

Main results: Of 20 eligible studies, 10 evaluated breastfeeding and 10 evaluated supplemental breast milk. 16 studies analysed used heel lance and four used venepuncture as procedure. We noted marked heterogeneity in control intervention and pain assessment measures among the studies. Neonates in the breastfeeding group had statistically a significantly lower increase in heart rate, reduced proportion of crying time and reduced duration of first cry and total crying time compared to positioning (swaddled and placed in a crib), holding by mother, placebo, pacifier use, no intervention or oral sucrose group, or both. premature infant pain profile (pipp) scores were significantly lower in the breastfeeding group compared to positioning, placebo or oral sucrose group, or both. However, there was no statistically significant difference in pipp scores when compared to no intervention. Douleur aigue nouveau-ne scores (dan) were significantly lower in the breastfeeding group compared to the placebo group and the group held in mother's arms, but not when compared to the glucose group. Neonatal infant pain scale (nips) was significantly lower in the breastfeeding group compared to the no intervention group, but there was no difference when compared to the oral sucrose group. The neonatal facial coding system (nfcs) was significantly lower in the breastfeeding group when compared to oral glucose, pacifier use, holding by mother and no intervention, but no difference was found when compared to formula feeding. supplemental breast milk yielded variable results. Neonates in the supplemental breast milk group had a significantly lower increase in heart rate, a reduction in duration of crying and a lower nfcs compared to the placebo group. Neonates in the supplemental breast milk group had a significantly higher increase in heart rate changes when compared to the sucrose group. Sucrose (in any concentration, i.e. 12.5%, 20%, 25%) was found to reduce the duration of cry when compared to breast milk, as did glycine, pacifier use, rocking, or no intervention. Breast milk was found not to be effective in reducing validated and non-validated pain scores such as nips, nfcs, and dan; only being significantly better when compared to placebo (water) or massage. We did not identify any study that has evaluated safety/effectiveness of repeated administration of breastfeeding or supplemental breast milk for pain relief.

Authors' conclusions:

If available, breastfeeding or breast milk should be used to alleviate procedural pain in neonates undergoing a single painful procedure rather than placebo, positioning or no intervention. Administration of glucose/sucrose had similar effectiveness as breastfeeding for reducing pain. The effectiveness of breast milk for painful procedure should be studied in the preterm population, as there are currently a limited number of studies in the literature that have assessed its effectiveness in this population.

RCT

Sucrose

1. Wilson, S., et al. (2013). „The Use of Oral Sucrose for Procedural Pain Relief in Infants Up to Six Months of Age: A Randomized Controlled Trial“. Pain Management Nursing, Vol 14: pp e95-e105

The aim of this study was to evaluate the effectiveness of oral sucrose in decreasing pain during minor procedures in infants of 1-6 months corrected age. A blinded randomized controlled trial with infants aged 4-26 weeks who underwent venipuncture, heel lance or intravenous cannulation were stratified by corrected age into >4-12 weeks and >12-26 weeks. They received 2 mL of either 25% sucrose or sterile water orally 2 minutes before the painful procedure. Non nutritional sucking and parental comfort, provided in adherence to hospital guidelines, were recorded. Pain behavior was recorded using a validated 10 point scale at baseline, during and following the procedure. Data collectors were blinded to the intervention. A total of 21 and 20 infants received sucrose and water, respectively, in the >4-12-week age group, and 21 and 22, respectively, in the >12-26-week age group. No statistical differences were found in pain scores between treatment and control groups at any data collection points in either age group. Infants aged >4-12 weeks who did non nutritional sucking showed statistically significantly lower median pain scores at 1, 2, and 3 minutes after the procedure than a those who did not suck. Infants aged >4-26 weeks exhibited pain behavior scores that indicated moderate to large pain during painful procedures; however, there was insufficient evidence to show that 2 mL 25% sucrose had a statistically significant effect in decreasing pain. Infants should be offered non nutritional sucking in compliance with the Baby Friendly Health Initiative during painful procedures.

2. Gradin, M., et al. (2005) „The Role of Endogenous Opioids in Mediating Pain Reduction by Orally Administered Glucose Among Newborns“ Pediatrics, 115:1004-1007;

Objective: It has been demonstrated clearly that sweet-tasting solutions given before a painful intervention can reduce pain among newborns. There is no fully accepted explanation for this effect, but activation of endogenous opioids has been suggested as a possible mechanism. The aim of this study was to obtain deeper knowledge of the underlying mechanism by investigating whether administration of an opioid antagonist would reduce the effect of orally administered glucose at heel stick among term newborns.

Design: randomized, placebo-controlled, double-blind trial with a validated, neonatal, pain-rating scale.

Participants. The trial included 30 term newborns undergoing heel stick, who were assigned randomly to 1 of 2 groups, ie, group I, with naloxone hydrochloride (opioid antagonist) 0.01 mg/kg administered intravenously before oral administration of 1 mL of 30% glucose, or group II, with a corresponding amount of placebo (saline solution) administered intravenously before oral administration of glucose.

Outcome Measures. Pain-related behavior during blood sampling was measured with the Premature Infants Pain Profile. Crying time and heart rate were also recorded.

Results. The 2 groups did not differ significantly in Premature Infant Pain Profile scores during heel stick. The median crying time during the first 3 minutes was 14 seconds (range: 0-174 seconds) for the naloxone group and 105 seconds (range: 0-175 seconds) for the placebo group. There was no significant difference in heart rate between the 2 groups.

Conclusion. Administration of an opioid antagonist did not decrease the analgesic effect of orally administered glucose given before blood sampling.

Mäng

1. Ullan, A.M., et al. (2014). „The Effect of a Program to Promote Play to Reduce Children’s Post-Surgical Pain: With Plush Toys, It Hurts Less“. Pain Management Nursing, Vol 15, No 1: pp 273-282

Various non pharmacological strategies to relieve hospitalized children’s pain propose play as a central element. Play is considered an essential resource to improve the negative psychosocial effects of the disease and the hospitalization itself. However, the empirical research of play in health settings has not received much attention.

The goal of this study was to determine the effect of a program to promote play in the hospital on postsurgical pain in pediatric patients. The research hypothesis was that children will manifest less pain if they are distracted through play during the postsurgical period. We carried out a randomized parallel trial with two groups, an experimental group and a control group. The control group did not receive any specific treatment, only the standard attention contemplated in the hospital.

The parents of the children from the experimental group received instructions to play with their children in the postsurgical period and specific playmaterial with which to play. The results obtained support the research hypothesis. On average, the children from the experimental group scored lower on a pain scale than the children from the control group. This occurred in the three postsurgical measurements of pain. It is concluded that the program to promote play can decrease children’s perception of pain.

2. Braun, J., et al (2014) „Play and heal: RCT of Ditto TM intervention efficacy on improving re-epithelialization in pediatric burns“. Burns, 40:204-213

Background: The relationships between pain, stress and anxiety and their effect on burn wound re-epithelialization have not been well explored to-date. The aim of this study was to investigate the effect of the Ditto TM (a hand-held electronic Medical device providing procedural preparation and distraction) intervention on re-epithelialization rates in acute pediatric burns.

Methods/Design: From August 2011 to August 2012, children (4–12 years) with an acute burn presenting to the Royal Children’s Hospital, Brisbane, Australia fulfilled the study requirements and were randomized to [1] Ditto TM intervention or [2] standard practice. Burn re- epithelialization, pain intensity, anxiety and stress measures were obtained at every dressing change until complete wound re-epithelialization.

Results: One hundred and seventeen children were randomized and 75 children were analyzed (n=40 standard group; n = 35 Ditto TM group). Inability to predict wound management resulted in 42 participants no longer meeting the eligibility criteria. Wounds in the Ditto TM intervention group re-epithelialized faster than the standard practice group (2.14 days (CI: 4.38 to 0.10), p-value=0.061), and significantly faster when analyses were adjusted for mean burn depth (2.26 days (CI: 4.48 to 0.04), p-value = 0.046). Following procedural preparation at the first change of dressing, the Ditto TM group reported lower pain intensity scores (0.64 (CI:1.28, 0.01) p=0.052) and lower anxiety ratings (1.79 (CI:3.59,0.01) p=0.051). At the second and third dressing removals average pain (FPS-R and FLACC) and anxiety scores (VAS-A) were at least on point lower when Ditto TM intervention was received

Muusika

1. Calcaterra, V., et al (2014) „Music benefits on postoperative distress and pain in pediatric day care surgery“. *Pediatric Reports*, 6:553 p: 44-48

Abstract

Postoperative effect of music listening has not been established in pediatric age. Response on postoperative distress and pain in pediatric day care surgery has been evaluated. Forty-two children were enrolled. Patients were randomly assigned to the *music-group* (music intervention during awakening period) or the *non-music group* (standard postoperative care). Slow and fast classical music and pauses were recorded and played via ambient speakers. Heart rate, blood pressure, oxygen saturation, glucose and cortisol levels, faces pain scale and Face, Legs, Activity, Cry, Consolability (FLACC) Pain Scale were considered as indicators of response to stress and pain experience. Music during awakening induced lower increase of systolic and diastolic blood pressure levels. The non-music group showed progressive increasing values of glycemia; in music-group the curve of glycemia presented a plateau pattern ($P < 0.001$). Positive impact on reactions to pain was noted using the FLACC scale. Music improves cardiovascular parameters, stress-induced hyperglycemia. Amelioration on pain perception is more evident in older children. Positive effects seem to be achieved by the alternation of fast, slow rhythms and pauses even in pediatric age.

2. Pölkki, T., et al (2008). „Imagery-Induced Relaxation in Children's Postoperative Pain Relief: A Randomized Pilot Study.“ *Journal of Pediatric Nursing*, Vol 23:217-224

This study aimed to test the efficacy of imagery and relaxation in hospitalized children's postoperative pain relief. Sixty children aged 8–12 years who had undergone appendectomy or upper/lower limb surgery and had been randomly assigned to the experimental group ($n_1 = 30$) listened to an imagery trip CD, whereas those in the control group ($n_2 = 30$) received standard care. An investigator-developed questionnaire was used, and the intensity of pain was assessed using a visual analogue scale: before (Phase 1), immediately after (Phase 2), and 1 hour after (Phase 3) intervention or standard care. The children in the experimental group reported having significantly less pain ($p < .001$) than the control children based on a comparison of VAS pain scores in Phases 1 and 2. There were no significant differences in nurse-assessed pain scores. The type and time of operation were related to pain intensity in children. The nurses underestimated the pain of pediatric patients. The imagery trip CD can be used to reduce children's postoperative pain in a hospital setting, although its effect is short-lasting.

3. „Pölkki, T., et al (2003). Hospitalized children's descriptions of their experiences with postsurgical pain relieving methods“. *International Journal of Nursing Studies*, 40 (2003) 33–44

Abstract

The purpose of this study was to describe children's (aged 8–12 yr) experiences with postsurgical pain relieving methods, and their suggestions to nurses and parents concerning the implementation of pain relief measures in the hospital. The data were collected by interviewing children ($N=52$) who were inpatients on a pediatric surgical ward in the university hospital of Finland. Content analysis was used to analyze the data. The children

rated the intensity of pain on a visual analogue scale. The results indicated that all of the children used at least one self-initiated pain relieving method (e.g. distraction, resting/sleeping), in addition to receiving assistance in pain relief from nurses (e.g. giving pain killers, helping with daily activities) and parents (e.g. distraction, presence). The children also provided suggestions, especially as it relates to nurses (e.g. creating a more comfortable environment), regarding the implementation of effective surgical pain relief. However, some cognitive-behavioral and physical methods were identified that should be implemented more frequently in clinical practice. Furthermore, most children reported their worst pain to be severe or moderate, which indicates that pain management in hospitalized children should be more aggressive.

4. Brasher, C., et al. (2014). „Postoperative Pain Management in Children and Infants: An Update“. *Pediatr Drugs*. 16:129–140

Abstract Many factors contribute to suboptimal pain management in children. Current evidence suggests that severe pain in children has significant long-lasting effects, even more so than in adults. In particular, recent evidence suggests a lack of optimal postoperative pain management in children, especially following ambulatory surgery. This review provides simple guidelines for the management of postoperative pain in children. It discusses the long-term effects of severe pain and how to evaluate pain in both healthy and neurologically impaired children, including neonates. Currently available treatment options are discussed with reference to the efficacy and side effects of opioid and non-opioid and regional analgesic techniques. The impact of preoperative anxiety on postoperative pain, and the efficacy of some nonpharmacological techniques such as hypnosis or distraction, are also discussed. Finally, basic organizational strategies are described, aiming to promote safer and more efficient postoperative pain management in children.

MEETOD	TÄISKASVANUD	LAPSED
Füüsikalised meetodid		
TENS	Mõõduka ja nõrga valu puhul	Uuringuid ei ole
Füsioteraapia	Mõju postoperatiivsele valule tagasihoidlik, vähendab tüsistuste esinemissagedust	Uuringuid ei ole
Külmaravi	Teatud operatsiooniliikide puhul soovitatav	Uuringuid ei ole
Psühholoogilised meetodid		
Kognitiiv-käitumuslikud meetodid (relaksatsioon, tähelepanu kõrvaljuhtimine, toimetulekuoskuste õpetamine jne)	Vähendavad mõõdukalt postoperatiivset valu ja ärevust	Vähendavad postoperatiivset ärevust ja valu
Muusika	Mõju postoperatiivsele valule on vähe, vähendab ärevust	Vähendab postoperatiivset valu ja ärevust, mõju on mõõdukas
Mäng	Ei kasutata	Efektiivne, vähendab postoperatiivset valu ja ärevust
Virtuaalreaalsus	Tõendusmaterjal postoperatiivse valu kohta	Laste puhul on efektiivne

	puudub, on leitud efekt eksperimentaalse valu ja põletustega seotud valu puhul	
Hüпноos	Täiskasvanutel leitud vähene mõju postoperatiivsele valule	Nii pre kui ka postoperatiivne hüпноos vähendab postoperatiivset valu ja ärevust