

NONPHARMACOLOGICAL PAIN MANAGEMENT IN PEDIATRIC NURSING

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Concept of Pain

The International association for the study of pain (2011) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in term of such damage".

Pain is whatever the person experiencing it says it is, existing whenever the person says it does. (McCaffery, 1999)

Pain is a subjective experience and is probably the most bewildering and frightening experience pediatrics will have.

Pain management refers to use of nursing process stage- assessment, planning, implementation and evaluation for the treatment of pain.

Classification of pain

Classification of the pain is essential to guide assessment and management approaches.

Pain can be classified in terms of its:

- (1) Intensity (mild, moderate or severe)
- (2) Duration (acute or chronic)
- (3) Pathophysiology (nociceptive, neuropathic or mixed)
- (4) Type or syndrome (Ebert et al.2010).

Acute pain is one of the most common advanced stimuli experienced by pediatrics, occurring as a result from injury, illness and medical procedure which are done routinely. It is associated with increased anxiety, somatic symptoms, avoidance and increased parent distress. Poorly managed acute pain can lead to increased sensitivity and an increased pain response to future occurrences of procedural pain such as immunizations (Noel 2012).

Pain Assessment

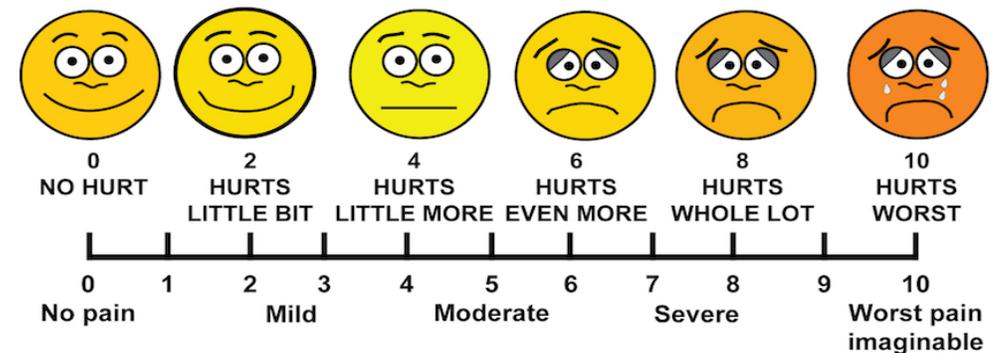
Pain assessment involves clinical judgements based on observation of the nature, significance and context of the child's pain experience. For pain to be managed effectively, ongoing assessment of the presence and severity of pain and child's response to treatment is essential. Pain can be assessed through self-reported measures, behavioral measure of pain or psychological measures (Twycross et al 2013).

Face, Legs, Activity, Cry, Consolability (FLACC)

Numerical Rating Scales(NRS).

CRIES(assesses cry, oxygen, vital signs, facial expressions and sleep).

PAIN MEASUREMENT SCALE



Barriers to proper pain management in paediatrics.

Myth that children and especially infants do not feel pain the same as adults

No untoward consequences to not treating pain

Lack of assessment skills

Lack of pain treatment knowledge

Notion that addressing pain takes too much time

Fears of adverse effects of analgesia– respiratory depression, addiction

Personal values and beliefs; i.e. pain builds character

Nonpharmacological Pain management

Nonpharmacological pain management refers to use of drug-free methods to relieve pain and improve wellbeing. While drugs are used to treat somatic dimension of pain, non-pharmacological methods aim to treat the affective, cognitive, behavioral and social-cultural dimensions of the pain.

The nonpharmacological methods include psychological pain-relief methods, physical methods, emotional support, helping with activities of daily living and comfortable environment.

The main objectives of nonpharmacological methods include (1) to decrease children's fear, (2) to reduce their distress and (3) to give them a sense of control.

When deciding the most effective nonpharmacological technique, take into consideration the patient's:

- Age
- Developmental level
- Medical history and prior experiences
- Current degree of pain and/or anticipated

Psychological pain-relieving methods

Cognitive behavioural therapy: is a form of talk therapy that helps improve child's moods, anxiety and behavior. And by changing negative thoughts and behaviors, children can change their awareness of pain and develop better coping abilities (Wente 2013)

Distraction: Distraction helps children cope with painful and distressing procedures by drawing child's attention away from noxious pain stimuli. It can be active form e.g toys or passive form e.g Television

Hypnosis: is an artificial induced altered state of consciousness, characterized by heightened suggestibility and receptive to direction. This altered state of consciousness happening within a relaxed physical state allows a trance that is different from both the normal state of being awake and any stages associated with sleep. Through hypnosis technique, children can be helped focus their attention away from pain and towards an imagined experience they view as calming, fun or safe (Evans et al.2008).

Relaxation: Relaxation comprises of several techniques that promotes stress reduction, the elimination of the tension throughout of the body and peaceful and calm state of mind.

Music Therapy: Music therapy can be in an active or passive form. In active music therapy, a music therapist is involved and music is used as a form of active communication while in passive music therapy, patients listens to music without the involvement of a music therapist (Evans et al.2008).

Pre-education: Preparation/education involves providing information about the medical intervention as appropriate. Sensations, visuals and sounds that will occur during a procedure are explained in an age/developmentally appropriate manner. Information provision allows children to have a greater sense of control and to plan coping strategies (Srouji et al.2010).

Bio-feedback: is a painless, non-invasive technique that trains people to control body processes which normally occurs voluntarily such as blood pressure, heart rate, skin temperature or muscle tension. Through the electrodes attached to the skin, the processes are measured and displayed on a monitor. Biofeedback is used to relieve pain, increase relaxation and reduce effects of stress. The technique should be taught to children by a skilled practitioner (Evans et al.2008).

Physical pain-relieving methods

Acupuncture: nonpharmacological pain relief is based on theory that energy flows through the body along channels known as meridians, which are connected by acupuncture points. If the flow is obstructed, pain results. The energy flow is restored by inserting needles at the acupuncture points along the obstructed meridians, which eliminates or reduces pain (Wu 2009).

Massage therapy: involves manipulation of the body by combining tactile and kinesthetic stimulation performed in purposeful sequential application for pain relief.

Positioning: done to help or support patients. Position changes prevent subsequent development of pain and also reduce acute pain by allowing proper blood flow and prevents muscles spasms and contractions (Ward 2016)

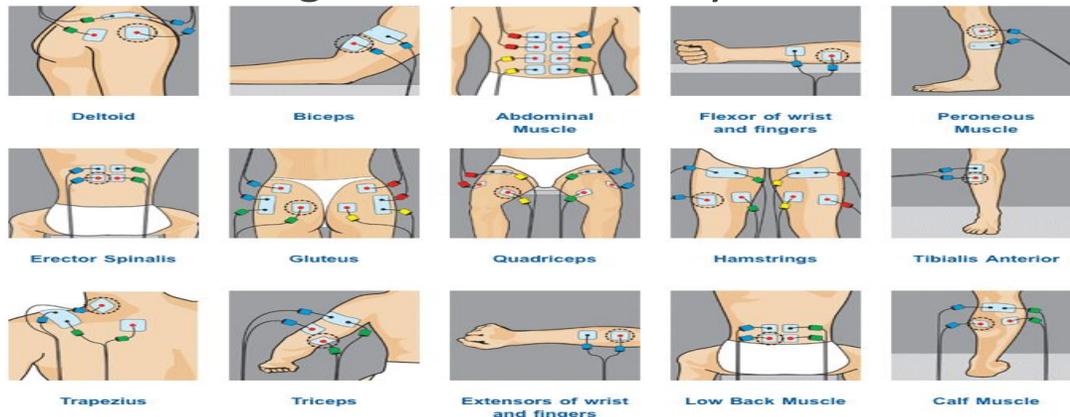
Heat and cold therapies: involves applying topic sources of heat or cold to a painful area for pain relief or comfort (Lane et al.2009).

Facilitated tucking: involves holding a child's body so that the limbs are in close proximity to the trunk. The child is held in a flexed, side-lying position using both touch and position to reduce pain reflexes (Kucukoglu 2015).



Physical pain-relieving methods

Transcutaneous electric nerve stimulation (TENS): Transcutaneous electric nerve stimulation is a method for stimulating nerves through electrodes applied to the skin. Transcutaneous electric nerve stimulation is a non-invasive and safe pain-relieving method for partially or completely blocking the pain sensation based on gate control theory.



Kangaroo care: is a method of holding that involves skin-to-skin contact. The baby is held upright at a 40-60 degree angle and covered by the parent's blouse or shirt which results improved balance in autonomic responses (Tsao, Evans et al. 2008).

Swaddling: involves wrapping the child firmly in a cloth or blanket to make them feel secure (Srouji et al.2010).

Non-nutritive sucking, sucrose and breastmilk: pain relief intervention is thought to reduce the effect of pain by providing stimulation to the further membrane receptors in the brain, where the endogenous opioid system is located (Campbell et al. 2014).

Other Nonpharmacological methods

Emotional support method: Emotional support involves comforting/reassuring, touch and presence (He et al. 2010).

Helping with activities of daily living: Previous studies shows that pediatric patients who are helped with daily activities such as bathing and sponging after painful procedures experience lower levels of pain(He et al.2011).

Creating a comfortable environment: involves paying attention to the comfort level of the hospital environment such as maintaining a comfortable temperature and air conditioning, minimizing noises, proper lightning, giving attention to the interior decoration and providing favorite belongings to the child (Abbas and Ghazali 2012).



Barriers encountered by nurses when using nonpharmacological methods

Heavy workload/lack of time

Child's inability to cooperate

Lack of resources(e.g. equipment, materials)

Lack of pain management policies to support and encourage the use of nonpharmacological methods (e.g. these methods are not part of routine/conventional practice)

Personal traditional cultural values of pain and pain relief

Lack of knowledge regarding non-pharmacological methods

Belief in inefficacy of nonpharmacological methods in pain relief

belief that parents should take the main role in use of nonpharmacological methods

Lack of parental support and cooperation in using nonpharmacological methods

Belief that nurses' primary task is to administer pain medication for pain relief and nurse's lack of experience in using nonpharmacological methods (Çelebioğlu et al. 2015 ; He et al. 2011)

Conclusions

- (1) Nonpharmacological pain management methods are essential part of caring in pediatric nursing and should be incorporated in clinical practice in combination with pharmacological methods or alone based on the pediatrics' pain assessment.
- (2) More education is needed to improve pediatric nursing pain assessment and management and use nonpharmacological pain management methods to enhance nurses' and parents' knowledge towards pain management.
- (3) Further research is needed to identify barriers limiting the implementation of nonpharmacological pain management methods because this knowledge will enable nurses to effectively incorporate these methods into their care routine.

References

BAULCH, I., 2010. Assessment and management of pain in the paediatric patient. *Nursing Standard*, **25**(10), pp. 35-40.

CAMPBELL, N., CLEAVER, K. and DAVIES, N., 2014. Oral sucrose as analgesia for neonates: How effective and safe is the sweet solution? A review of the literature. *Journal of Neonatal Nursing*, **20**(6), pp. 274-282.

CELEBIOĞLU, A., KÜÇÜKOĞLU, S. and ODABAŞOĞLU, E., 2015. Turkish Nurses' Use of Nonpharmacological Methods for Relieving Children's Postoperative Pain. *Alternative Therapies in Health & Medicine*, **21**(5), pp. 30-35.

CHNG, H.Y., HE, H., CHAN, S.W., LIAM, J.L.W., ZHU, L. and CHENG, K.K.F., 2015. Parents' knowledge, attitudes, use of pain relief methods and satisfaction related to their children's postoperative pain management: a descriptive correlational study. *Journal of Clinical Nursing*, **24**(11), pp. 1630-1642.

CONG, X., LUDINGTON-HOE, S.M., MCCAIN, G. and FU, P., 2009. Kangaroo Care modifies preterm infant heart rate variability in response to heel stick pain: Pilot study. *Early human development*, **85**(9), pp. 561-567.

ECCLESTON, C., 2012. Psychological therapies for the management of chronic and recurrent pain in children and adolescents. *The Cochrane database of systematic reviews*, **12**, pp. CD003968.

Ebert, Michael H., and Kerns, Robert D., eds. Behavioral and Psychopharmacologic Pain Management. Cambridge, GB: Cambridge University Press, 2010. ProQuest ebrary. Web. 18 February 2017.

GOTTSCHLING, S., MEYER, S., GRIBOVA, I., DISTLER, L., BERRANG, J., GORTNER, L., GRAF, N., SHAMDEEN, M. and POTHMANN, R., 2009. Laser Acupuncture in Children with Headache: A double-blind, randomized, bicenter, placebo-controlled trial. *Deutsche Zeitschrift für Akupunktur*, **52**(1), pp. 52.

HA, Y.O. and KIM, H.S., 2013. The effects of audiovisual distraction on children's pain during laceration repair. *International journal of nursing practice*, **19**, pp. 20-27.

HARRISON, D., 2016. Breastfeeding for procedural pain in infants beyond the neonatal period. *The Cochrane database of systematic reviews*, **10**, pp. CD011248.

HE, H., JAHJA, R., LEE, T., ANG, E.N.K., SINNAPPAN, R., VEHVILINENJULKUNEN, K. and CHAN, M.F., 2010. Nurses' use of non-pharmacological methods in children's postoperative pain management: educational intervention study. *Journal of advanced nursing*, **66**(11), pp. 2398-2409.

HE, H., LEE, T., JAHJA, R., SINNAPPAN, R., VEHVILINENJULKUNEN, K., PLKKI, T. and ANG, E.N.K., 2011. The use of nonpharmacological methods for children's postoperative pain relief: Singapore nurses' perspectives. *Journal for Specialists in Pediatric Nursing*, **16**(1), pp. 27-38.

HERRINGTON, C.J. and CHIODO, L.M., 2014. Human Touch Effectively and Safely Reduces Pain in the Newborn Intensive Care Unit *Pain Management Nursing*, **15**(1), pp. 107-115.

HO, S. and HO, L., 2012. Effects of facilitated swaddling for controlling procedural pain in premature neonates: a randomized controlled trial. *The Journal of Pain*, **13**(4, Supplement), pp. S59.

Kasat, V. (2014). Transcutaneous electric nerve stimulation (TENS) in dentistry- A review. *Journal of clinical and experimental dentistry*, **6**(5), p. e562.

LIAW, J., YANG, L., KATHERINE WANG, K., CHEN, C., CHANG, Y. and YIN, T., 2012. Nonnutritive sucking and facilitated tucking relieve preterm infant pain during heel-stick procedures: A prospective, randomised controlled crossover trial. *International journal of nursing studies*, **49**(3), pp. 300-309.

PÖLKKI, T., PIETILÄ, A., VEHVILÄINEN-JULKUNEN, K., LAUKKALA, H. and KIVILUOMA, K., 2008. Imagery-Induced Relaxation in Children's Postoperative Pain Relief: A Randomized Pilot Study. *Journal of pediatric nursing*, **23**(3), pp. 217-224.