

CLINICAL QUESTION

Is there evidence of pain and distress reduction in pediatric patients who receive analgesic or anxiolytic interventions during needle-related or minor invasive procedures in the emergency department?

PROBLEM

Approximately 17% of children in the United States visited the emergency department (ED) in 2015 (National Center for Health Statistics, 2017). During these emergency department visits, pediatric patients frequently experience invasive procedures including intravenous (IV) catheterization, bladder catheterization, venipuncture, immunization administration, and nasogastric tube placement. These procedures contribute to the stress and anxiety of treatment in the ED for pediatric patients (Ali, McGrath, & Drendel, 2016; Babl et al., 2009; Farion, Splinter, Newhook, Gaboury, & Splinter, 2008). Because procedural pain is commonly associated with ED visits, safe and effective interventions addressing pain in the pediatric population are essential. Researchers have revealed deficiencies in ED pain assessment and management, particularly with children (Ali et al., 2016). Multiple techniques to reduce pain and distress for needle-related procedural pain or minor invasive procedures are presented in the CPG. This CPG includes behavioral interventions, dermal anesthetic preparations, subdermal local anesthetic with needle-free delivery, application of ice and vibration, the use of sucrose, or a combination of therapies.

Description of Decision Options/Interventions and the Level of Recommendation

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Behavioral Interventions	Breastfeeding, skin-to-skin contact, and parental holding are beneficial behavioral interventions to reduce procedural pain in infants (Curtis et al., 2012; Lee et al., 2014; Taddio et al., 2015).	A
	There is sufficient evidence to support the use of hypnosis for reducing procedural pain and distress in areas with appropriately trained personnel (Birnie et al., 2014; Curtis et al., 2012; Uman et al., 2013).	A
	There is sufficient evidence to support the efficacy of developmentally appropriate use of distraction cards, kaleidoscope, balloon inflation, play dough, and the cough trick in reducing pain and distress (Canbulat et al., 2014; Maghsoudi et al., 2015; Mutlu & Balci, 2015; Şahiner & Bal, 2016).	A
	There is evidence that verbal coaching, breathing exercises alone or with toys, and handheld electronic devices decrease procedural pain and distress (Birnie et al., 2015; Birnie et al., 2014; Chambers et al., 2009; Curtis et al., 2012; McCarthy et al., 2014; Miller et al., 2016; Rezai et al., 2016; Riddell et al., 2015; Stinley et al., 2015; Uman et al., 2013).	A
	The presence of clowns may reduce procedural pain and anxiety in some children (Ben-Pazi et al., 2017; Felluga et al., 2016; Gilboa-Negari et al., 2017; Meiri et al., 2016; Wolyniez et al., 2013).	A
	Evidence supports the effectiveness of patient information/preparation in combination with distraction to decrease pain and distress (Taddio et al., 2015; Uman et al., 2013).	A
	Listening to music is an effective distraction technique in reducing pain and distress (Birnie et al., 2015; Burns-Nader et al., 2017; Hartling et al., 2013; Rezai et al., 2016; Uman et al., 2013; Yinger & Gooding, 2015).	A
	There is evidence that reduction of anxiety may decrease procedural pain (Chiang et al., 2014; Goettems et al., 2017; Hyland et al., 2015; Matziou et al., 2013; Meiri, et al., 2016).	A
	There is insufficient evidence to make a recommendation for a dog being present during a procedure to decrease distress levels in children accustomed to being around dogs (Vagnoli et al., 2015).	I/E

Clinical Practice Guideline: Synopsis Needle-Related or Minor Procedural Pain in Pediatric Patients

Description of Decision Options/Interventions and the Levels of Recommendation		
Dermal Anesthetic Preparations	All transdermal forms of lidocaine/tetracaine (amethocaine) are effective in reducing pain associated with IV cannulation, venipuncture, and immunization. Preparations in the form of cream or patches take longer to exert an effect (60 minutes or more), which makes them less feasible for use in the ED environment. (Curtis et al., 2012; Lee et al., 2014; Schmitz et al., 2015; Sethna et al., 2005; Singer et al., 2008; Taddio et al., 2015).	A
	Pentafluoropropane and tetrafluoroethane (Pain Ease®) results in a moderate reduction in pain in patients 6–12 years of age undergoing IV cannulation (Farion et al., 2008; Waterhouse et al., 2013).	B
	Ethyl vinyl chloride may be effective in relieving pain associated with venipuncture (Costello et al., 2006; Taddio et al., 2015).	B
Sucrose	Evidence suggests that sucrose is beneficial as a form of analgesia in children from zero to three months of age; no benefit has been demonstrated for children older than three months. (Desjardins et al., 2016; Ferayorni et al., 2012; Harrison et al., 2017; Harrison et al., 2015; Hatfield et al., 2011; Lee et al., 2014; Sethi & Nayak, 2015; Taddio et al., 2015).	A
Local Application of Ice and Vibration	Local application of ice along with vibration decreases the pain and distress associated with venipuncture. (Baxter & Cohen, 2011; Canbulat et al., 2015; Faroukh et al., 2016; Şahiner et al., 2015; Schreiber et al., 2016).	B
Subdermal Local Anesthetic with Needle-Free Delivery	The use of a needleless injection device (e.g., J-Tip®) as a delivery method for lidocaine is superior to other forms of preparation when rapid local anesthesia is required. (Ferayorni et al., 2012; Jimenez et al., 2006; Spanos et al., 2008; Spillman, 2012).	A

Level A (High)	Based on consistent and good quality of evidence; has relevance and applicability to emergency nursing practice.
Level B (Moderate)	There are some minor inconsistencies in quality evidence; has relevance and applicability to emergency nursing practice.
Level C (Weak)	There is limited or low-quality patient-oriented evidence; has relevance and applicability to emergency nursing practice.
N/R	Not recommended based upon current evidence.
I/E	Insufficient evidence upon which to make a recommendation.
N/E	No evidence upon which to make a recommendation.

ENA Clinical Practice Guidelines (CPGs) are evidence-based documents that facilitate the application of current evidence into everyday emergency nursing practice. CPGs contain recommendations based on a systematic review and critical analysis of the literature about a clinical question. CPGs are created following the rigorous process described in ENA's Requirements for the Development of Clinical Practice Guidelines. The purpose of CPGs is to positively impact patient care in emergency nursing by bridging the gap between practice and currently available evidence.

Access the full CPG at: <https://bit.ly/2CsrpUp>