Pain Experience for Adults Having IV Insertion With and Without Use of Needleless Local Anesthetic Injection System

Suzette Schellenberger RN, MSN, CNOR ~ Barbara Polivka PhD, RN ~ Annetra Taylor

INTRODUCTION
- Insertion of a peripheral intravenous (IV) catheter is often a source of pain and anxiety for adult patients
- Current practice involves, most commonly:
  a) no pre-medication or
  b) intradermal injection (ID) of saline or lidocaine prior to IV insertion
- Norton Brownsboro Hospital has used an FDA approved device since 2010 that delivers buffered lidocaine via needleless injection as a local anesthetic for preoperative patients prior to IV insertion.

BACKGROUND
- Nursing specialty organizations:  
  • Advocate for improved patient experience during IV insertion  
  • Encourage utilization of available options to reduce anxiety / promote comfort with IV insertion
- Numerous studies compared local anesthetic ID meds, sprays, and creams – with varying results and recommendations
- No current studies found that evaluate needleless injection system for IV insertion in adults
- Anderson et al. (2010) explored local anesthetic agents to decrease IV insertion pain:
  • Results did not support the use of ID anesthetic agents before IV catheter insertion.
  • Preoperative anxiety is associated with measurable negative patient outcomes (Ip et al. 2009)
- Patients should be included in decision about pain management during IV insertion (Levitt & Ziemb- Davis 2013)

PURPOSE
This study compared the pain experience for adult patients having IV insertion with and without the use of a needleless injection of buffered lidocaine.

Findings will:
- Assist development of uniform nursing practice to reduce pain and anxiety with IV insertion
- Align with Joint Commission standards: recognize patient right to appropriate assessment and management of pain
- Align with national nursing organizations’ recognition of need to assess and treat patient procedural pain, including IV insertion pain.

METHOD
- Adult patients (N=50) in the preoperative setting and emergency department (N=50) rated their pain, using a 10 point visual analog scale:
  - Before IV insertion
  - During IV insertion
  - 1 minute after IV insertion
  - 3 minutes after IV insertion
- Additional data gathered:
  - Participant demographics (age, sex)
  - IV Gauge, Insertion site, Insertion difficulty
  - Distractors (e.g., TV, family, phone)

RESULTS
- Pain was significantly lower for patients who received the needleless injection of buffered lidocaine prior to IV insertion
- This finding remained significant when controlling for pre-insertion pain and for distractors
- 66% of patients with needleless injection of buffered lidocaine also had larger catheter (18 g)
- Findings will be used to promote a standardized approach to pain management prior to IV insertion
- Suggest further study of:
  - Patient perception of pain / patient involvement in decision making during IV insertion
  - Patient comfort during IV insertion as predictor of patient satisfaction

REFERENCES

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