Comparative Study on Intravenous Catheter Insertion Pain control, Anxiety, and Satisfaction in Adult Same Day Surgery Patient; Using a Vibrating, Cold Device or Traditional Local Anesthetics Intradermal Injection

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BACKGROUND

- Pain from intravenous placement is one of the most frequent, painful, anxiety provoking events experienced by patients in the hospital.
- Intradermal local anesthetic injection has been shown to be effective in decreasing the pain during peripheral intravenous placement compared with other interventions (Brown, 2003).
- Current research has identified that distraction techniques and topical anesthetics are effective in decreasing pain and anxiety during painful procedures (Schreiber et al. 2016).
- Vibration, cold and other tactile stimulation are also mechanisms for reducing the pain sensation.
- Studies have shown that Vibrating, Cold Device use in pediatric patients is effective in reducing venipuncture pain (Schreiber et al. 2016). There have been no studies to compare the effects of Vibrating, Cold Device, on venipuncture pain management, with that of intradermal local anesthetics injection in adults.
- alternatives that may be used within the scope of nursing practice, such as the vibrating cold device should be explored.

OBJECTIVE

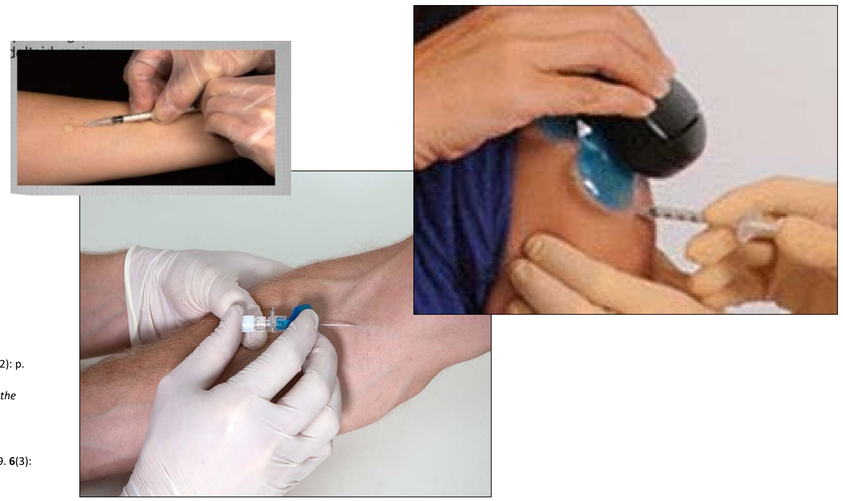
- The purpose of this study was to determine if there is a difference between intravenous insertion techniques used to manage pain, anxiety and patient experience in adult pre-operative patients in a same day surgical unit.
- The two techniques being compared are intradermal local anesthetic injection and an external vibrating/cold device.

METHODOLOGY

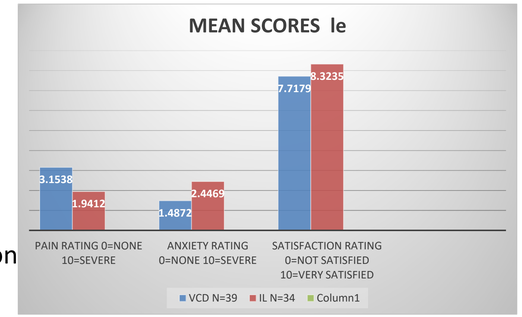
- Experimental, Randomized Controlled Trial
- ***Dependent Variables***

a. pain control/comfort
b. level of anxiety
c. overall satisfaction with the venipuncture.

- Subjects approached through face to face invitation to participate in the study during their pre-operative admission on the day of surgery.
- Subject consented to participate
- A coin was flipped to determine if they will receive vibrating/cold device or intradermal lidocaine injection as means of venipuncture comfort measure.
- Venipuncture with intradermal local anesthetic was performed by a member of the department of anesthesia as per hospital policy.
- The vibrating cold device was performed by non-study personnel who are either IV certified Registered Nurses or a LIP.
- Subjects were asked to complete the following surveys after the intervention; pain score, anxiety rating, and satisfaction rating based on a Likert scale 0=None to 10=sever



RESULTS



Yellow is statistically significant pValue=0.5

	1=vcd; 2=lai	N	Std. Deviation	Std. Error Mean
0=NONE 10=SEVERE	1.00		2.13416	.34174
	2.00		1.70456	.29233
0=NONE 10=SEVERE	1.00		2.18694	.35019
	2.00		2.73242	.46861
0=NOT SATISFIED 10=VERY SATISFIED	1.00		3.11151	.49824
	2.00		2.25255	.38631

DISCUSSION

- Vibrating cold device (VCD) mean pain score of 3.1 is considered mild pain intensity. Evidence has shown that patients report pain on IV insertion to be severe, score between 7-10. VCD provides better pain control as opposed to no pain control intervention.
- Use of VCD yielded lower reported levels of anxiety and comparable satisfaction scores when compared to local anesthetic intradermal.
- Vibrating cold device may be used, within the scope of nursing practice, to provide pain control during IV insertion. Intradermal Lidocaine Injection must be performed by licensed independent practitioner.
- VCD intervention also has a positive effect on the anxiety level experienced by patients during IV insertion and offers a high level of patient satisfaction.
- Implications for perianesthesia nurses and future research: Use of Vibration, cold and other tactile stimulation as mechanisms for reducing pain sensation experienced by patients during procedures or postoperatively should be explored.

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