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

Primary Investigator: Dawnmarie Devito MSN Ed. RN CPAN
Robert Wood Johnson University Hospital New Brunswick, New Jersey
Co-Investigators: Patricia Rich BSN RN, Susan Elliott BSN RN

Introduction: Intradermal local anesthetic injection has been shown to be effective in decreasing pain during peripheral intravenous placement compared with other interventions. Current research has identified that distraction techniques and topical anesthetics are effective in decreasing pain and anxiety during painful procedures. Vibration, cold and other tactile stimulation are also mechanisms for reducing the pain sensation

Identification of the problem: Pain from intravenous placement is one of the most frequent, painful, anxiety provoking events experienced by patients in the hospital. Current popular method to decrease pain during venipuncture is intradermal local anesthetic injection which is not within nursing scope of practice. Alternatives that may be used, such as the vibrating cold device should be explored.

Purpose of the Study: To determine if there is a difference between intravenous insertion techniques used to manage pain, anxiety and patient experience in adult pre-operative patients. Techniques compared are intradermal local anesthetic injection and an external vibrating/cold device.

Methodology: Experimental, Randomized Controlled Trial. Subjects approached through face to face invitation to participate and consent to be in the study. A coin was flipped to determine if they will receive vibrating/cold device or intradermal lidocaine injection as means of venipuncture comfort measure. Members of the research team utilized a de-identified data collection tool and subjects were asked to complete surveys after the intervention; pain score, anxiety rating, and satisfaction rating based on a Likert scale.

Results: 1.00=Vibrating Cold Device 2.00=Local Anesthetic Intradermal

	1=vcd; 2=lai	N	Mean	Std. Deviation	Std. Error Mean
0=NONE 10=SEVERE Pain	1.00	39	3.1538	2.13416	.34174
	2.00	34	1.9412	1.70456	.29233
0=NONE 10=SEVERE Anxiety	1.00	39	1.4872	2.18694	.35019
	2.00	34	2.4412	2.73242	.46861
0=NOT SATISFIED 10=VERY SATISFIED	1.00	39	7.7179	3.11151	.49824
	2.00	34	8.3235	2.25255	.38631

Discussion: Vibrating cold device (VCD) mean pain score of 3.1 is considered mild pain intensity. Use of VCD yielded lower levels of anxiety and comparable satisfaction scores when comparted to Local anesthetic intradermal.

Conclusion: Vibrating cold device may be used, within the scope of nursing practice, to provide pain control during IV insertion. This 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 post procedure.