

[3786.2] A Randomized Placebo Controlled Trial of Jet Lidocaine for Pain Relief During Needle Insertion in a Pediatric Emergency Department

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BACKGROUND: Needle insertion is a common and painful procedure in the Pediatric Emergency Department (PED). Many children do not receive local anesthetics prior to needle insertion due to the duration of time required until activity of the currently available agents. Prior studies suggest that Jet Lidocaine (JL), a rapidly acting (<1 second) carbon dioxide gas driven medication delivery device, reduces needle insertion pain.

OBJECTIVE: To explore if Jet Lidocaine reduces pain compared to a Jet Saline (JS) placebo in children undergoing needle insertion. To compare patient and provider satisfaction in the two groups.

DESIGN/METHODS: Randomized, double-blind, placebo-controlled clinical trial. Children 5-18 years old randomly received Jet Lidocaine or placebo. A validated self-reported Color Analogue Scale (CAS) assessed pain. MDs and RNs scored cooperation and ease of insertion. Patients reported satisfaction.

RESULTS: 170 patients randomized; 90 JL 80 JS. Groups were similar in age, gender, race, diagnosis, pain medications, prior needle experience, needle size, cooperation, procedure (IV, phlebotomy), location (antecubital, hand), and provider type (RN, MD). The pain scores for needle insertion were similar in the two groups (Table 1). The Jet Lidocaine group's pain score was 0.6 cm less than the Jet Placebo group's score. A clinically significant reduction in pain score is 2.5 cm or more. Patient's receiving Jet Lidocaine were more satisfied and more likely to request the device for future needle insertions (Table 2). Provider satisfaction ratings were similar.

Table 1. Color Analogue Scale of Pain (0 to 10 cm)

	Jet Lidocaine	Jet Placebo
ΔCAS (cm)	2.7 +/- 3.0	3.3 +/- 2.9

ΔCAS = Pre to Post needle insertion, (clinical significance = 2.5cm)

Table 2. Patient Satisfaction

	Jet Lidocaine	Jet Placebo
Want for future needle insertion (%Yes) *	66	47

* p<0.005

CONCLUSIONS: Jet Lidocaine is no more effective than a placebo in providing local anesthesia for needle insertion. The lack of a difference in pain scores in children undergoing needle insertion in the PED receiving Jet Lidocaine compared to placebo contradicts prior literature on this topic. The large sample size and randomized placebo-controlled design of this study provides a more accurate description of the effectiveness

of Jet Lidocaine than prior studies.
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