

Preliminary Outcomes of Prospective, Single-Center, Randomized, Double-Blind Clinical Trial Evaluating Pain Associated with Epidural Tuohy Needle Insertion after Administration of Intradermal or Subcutaneous Lidocaine in Parturient Women Requesting Epidural Analgesia

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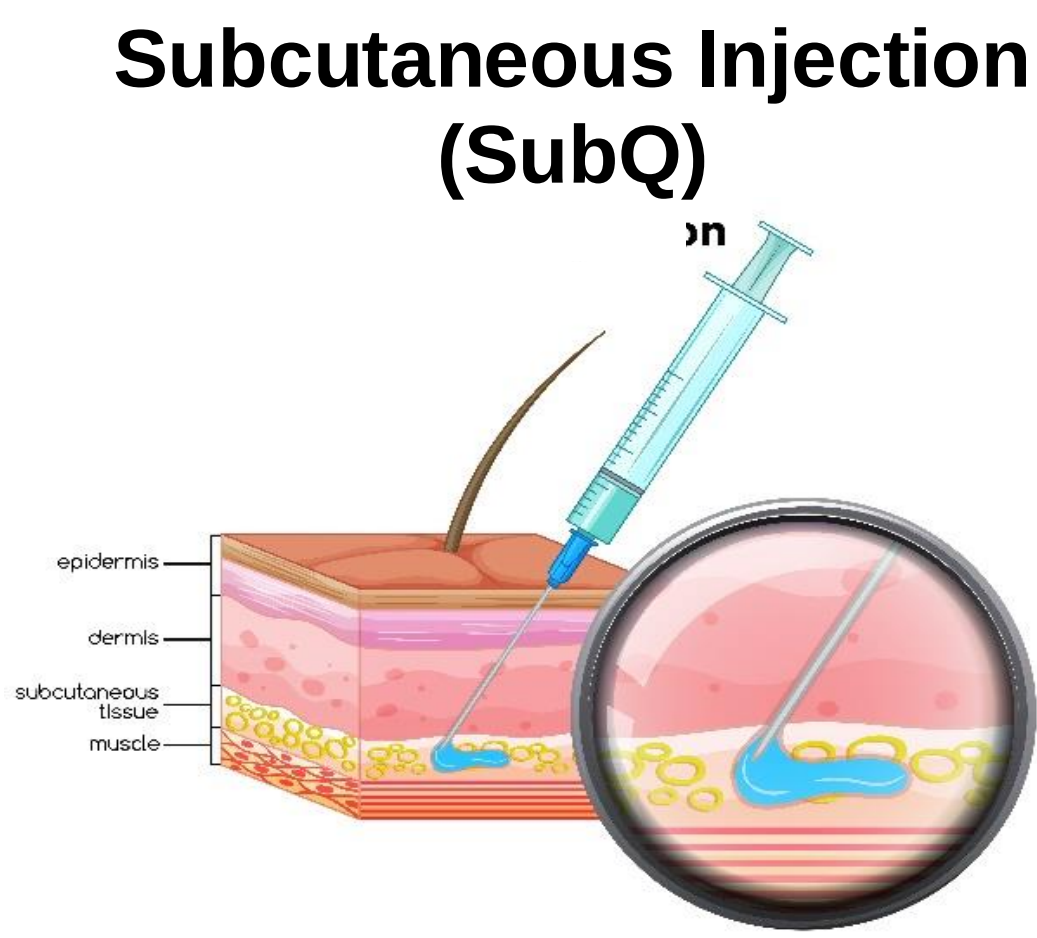
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INTRODUCTION

- Providers often administer lidocaine to numb the skin to minimize pain prior to epidural needle insertion for labor analgesia
- Both intradermal and subcutaneous administration of lidocaine are used clinically prior to Tuohy insertion for epidural analgesia
- Previous literature shows that intradermal injections generally cause more pain in other procedures, but there is not evidence of this in lumbar epidural placements
- The Critical-Care Pain Observation Tool (CPOT) is used to objectively measure behavioral pain indicators (such as facial expressions, body movements, muscle tension, and patient's vocalizations) with higher CPOT scores generally indicating greater pain

MATERIALS AND METHODS

- Two study groups:** Lidocaine injection intradermally (Skin WHEAL) and lidocaine injection subcutaneously (SubQ)
- Null Hypothesis:** There is no difference in CPOT scores associated with intradermal and subcutaneous administration of lidocaine.
- Primary Outcomes:** To assess the differences in CPOT pain scores during lidocaine administration and epidural Tuohy needle insertion between both groups
- Secondary outcomes:** To assess the differences in NRS (Numeric Pain Rating Scale) pain scores, differences in blood pressure (BP) throughout the procedure, differences in heart rate throughout the procedure, and differences in overall patient procedural satisfaction between both groups



DEMOGRAPHICS & CPOT SCALES

Demographics	
Total Patients (n= 31)	
Patient Measurables	
Average Age	30.77
Average BMI	29.16
Average Height (cm)	163.38
Average Weight (kg)	77.92
Pregnancy History	
First Time Pregnancy	51.6%
Previous Pregnancy	48.4%
Previous Failed Pregnancy	25.8%
Ethnicity	
Hispanic	9.37%
Smoking Status	
Current Smokers	3.23%

CPOT Scoring Scale	
Vocalization	
0	Talking in Normal Tone or No Sound
1	Sighing, Moaning
2	Crying out, Sobbing
Facial Expression	
0	Relaxed, neutral
1	Tense
2	Grimacing
Body Movement	
0	Absence of Movement
1	Protection
2	Restlessness
Muscle Tension	
0	Relaxed
1	Tense, Rigid
2	Very Tense or Rigid

NRS & CPOT SCORES DURING LIDOCAINE AND TUOHY EPIDURAL INJECTIONS

SubQ Injection				Skin WHEAL Injection			
NRS Score		CPOT Score		NRS Score		CPOT Score	
Lidocaine Injection	Tuohy Injection	Lidocaine Injection	Tuohy Injection	Lidocaine Injection	Tuohy Injection	Lidocaine Injection	Tuohy Injection
4.0	4.5	2.4	2.5	2.9	2.0	2.9	1.9
Avg Patient Satisfaction Score: 9.56				Avg Patient Satisfaction Score: 8.73			

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RESULTS

- 16 subjects were randomized to group SubQ, 15 subjects were in group Skin WHEAL
- Two subjects were unable to be followed up as epidural placement occurred after normal research hours
- The average CPOT score dropped from 2.9 during the Lidocaine administration to 1.9 during the epidural placement for the Skin WHEAL group
- The average CPOT score rose from 2.4 during the Lidocaine administration to 2.5 during the epidural placement for the SubQ group
- The patient satisfaction score was higher for the SubQ injection group compared to the Skin WHEAL injection group

DISCUSSION/FUTURE STEPS

- Current results indicate a difference between study groups, however not enough data for statistical analysis
- Current results show that Tuohy insertion is less painful with intradermal injection of lidocaine compared to SubQ s injection
- However, Skin WHEAL lidocaine administration is more painful than SubQ lidocaine administration based on CPOT scores
- Total study n=60 was recently completed, analysis underway
- Further investigation may help to elicit more insights on lidocaine injection techniques for obstetric epidurals upon study completion

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