ULTRASOUND GUIDED VS: BLIND/TEMPLATED INTRATHecal PUMP REFILLS
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Introduction

- To my knowledge there have been no studies that clinically evaluate the use of ultrasound guidance to access and refill implanted intrathecal pumps.

- Ultrasound is being widely used to help limit procedural complications and allow appropriate localization of anatomic structures.

- There have been a few case reports and descriptions of US guidance for pump refill, but no standardized method.
Hypothesis

- Ultrasound-guided intrathecal pump refills will:
  - decrease amount of time to access pump
  - decrease number of sticks/maneuvers
  - decrease post-procedure pain
  - increase patient satisfaction.
Objective

- The aim of this study is to compare the efficacy, safety, duration, and patient satisfaction of Ultrasound-guided vs Blind/Templated intrathecal pump refills.
Design

- Prospective, clinical trial comparing Ultrasound-guided vs: Templated intrathecal pump refills.
- The study will include patients from our University of Kentucky PM&R Clinic with intrathecal pumps.
- Subjects will be randomized to obtain an equal number of pts in each group.
- Patient/Physicians will not be blinded secondary to the use of ultrasound due to limited ability to blind that factor from either the patient or physician.
Study Population

- **Inclusion Criteria:** patient with implanted intrathecal pumps who are 18 years or older and are willing to participate in the study.

- **Exclusion Criteria:** <18yrs, Infection/Hospitalization within last month, active fever or current infection, need for pump/battery exchange within next 3 months.
Procedure

- **Template/Blind Group: Risk/Benefits, Informed Consent, Timeout**
  - Physician preps injection site and medications ready for refill, with template on sterile field.
  - Physician gloves, templates pump, accesses site w/ number of sticks/needle maneuvers noted, removes current meds, refills pump, patient is then cleaned, bandaged, and reprogrammed.
Procedure Continued

- **US-Guided Group:** Risk/Benefits, Informed Consent, Timeout
  - Physician preps injection site, medications ready for refill, US covered, sterile, ready to access pump.
  - Physician gloves, uses ultrasound to access site, removes current pump medications, refills pump, needle removed, patient is cleaned, bandaged, and reprogrammed.
Outcome Measured

- **Time:**
  - Setup time: After timeout to beginning to access pump.
  - Access time: when template/US touches pump site to access and current pump medication is removed and first seen in the catheter.
- Needle sticks and needle maneuvers per refill
- Number of traumatic taps
- Pain: post-procedure: immediate, at follow-up visit for next refill.
- Complications (infection, pump site bruising, pocket fills): immediate, at follow-up visit for next refill.
- Patient satisfaction: immediate post-procedure.
Expected Outcomes

- Ultrasound will decrease pump access time
- Ultrasound will decrease needle maneuvers/number of sticks
- Pain will be improved by use of ultrasound post-procedure
- Less overall complications with ultrasound.
- Improved Patient satisfaction with the use of ultrasound.
COMMENTS?????

Thank you
References


- Reg Anesth Pain Med Fall 2012 A Review of Ultrasound-guided Intrathecal Pump Refill, Abstract Number: A080, Abstract Type: Scientific Abstract. T. Lin, D. Solanki. Anesthesiology and Pain Medicine, University of Texas Medical Branch, Galveston, TX, USA