Ultrasound-guided Basal Joint Injection: Does Experience Matter?

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INTRODUCTION

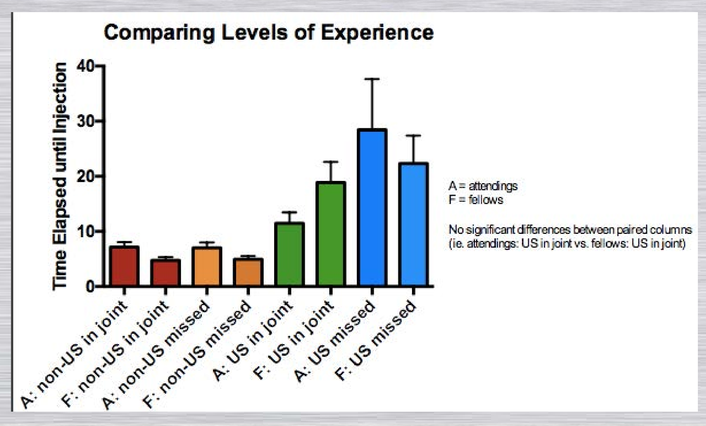
The use of ultrasound-guided injections at the basal joint has increased in an attempt to improve accuracy of intraarticular injections

- This study aimed to evaluate the utility of ultrasound guidance for basal joint injection using a model that takes into account the limited patient tolerance for painful procedures.
- **Our hypothesis was that ultrasound would not improve speed or accuracy for injecting the basal joint.**

MATERIALS & METHODS

-Two Senior residents, One hand fellows and One attending were selected as participants.
-All subjects underwent an identical introduction to ultrasound, given by an experienced ultrasound technologist instructor.
-Evaluation of subjects was performed on 10 fresh frozen cadaver hands with attached forearms.
-Each subject attempted to insert a 22 gauge needle into the basal joint.
- Subjects were instructed to attempt to keep injection time <5 seconds, and were informed when 5 seconds had elapsed.
-A needle was placed in each cadaver and the position evaluated by fluoroscopy after all needles were placed.
-The process was then repeated for all subjects using a 7.5 MHz linear probe to localize the basal joint and guide needle placement.
- Confirmation of intraarticular needle placement by orthogonal fluoroscopic views evaluated by two blinded hand surgeons with a third surgeon as a tie-breaker

FIGURE 1



RESULTS

-Intraarticular injections accurately placed among all physicians:
- 42% of palpation based injections (17/40)
- 25% (10/40) of ultrasound

-Ultrasound did not improve the accuracy of intraarticular injections (p=0.098)

- Properly sited injections: ultrasound guidance increased the duration of needle placement (14.41 versus 6.15 seconds)
- Improperly sited injections: ultrasound guidance increased the duration of needle placement (25.16 versus 5.85 seconds)
-No significant difference in accuracy or time between residents and attendings with or without ultrasound.

DISCUSSION

- No significant difference between surgeons with different levels of training in accuracy with ultrasound-guided injections.
- Ultrasound didn't improve the accuracy of intraarticular injections despite a short tutorial.
- Additional research is warranted to investigate if increasing experience with ultrasound improves accuracy and speed of injections.

-Overall, for those without ultrasound experience, ultrasound-guided injections took longer without improving accuracy.

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