Hip Injections: Can Ultrasound Compete with Fluoroscopy?

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• No relevant author disclosures.
Introduction

• Common reasons for joint injections:
  – Contrast injection prior to magnetic resonance imaging arthrograms
  – Verifying position prior to steroid injection and joint aspiration.
• Ultrasound and fluoroscopic guidance are two approach methods.
• Past comparisons evaluated factors including pain and outcome after steroid injection.
Hypothesis

• The technical success rate between ultrasound and fluoroscopy have an equivalent success rate between the procedures.
Method

• We reviewed 31 adult ultrasound guided hip injections and 26 adult fluoroscopic guided hip injections at our institution from 2012 to 2016 for a total of 57 hip injections.

• Procedures were performed either by an attending or a resident with attending supervision.
• Injection success was determined by the presence of intra-articular contrast material as seen on ultrasound and fluoroscopic imaging.
• Mixed or extra-articular contrast was considered suboptimal. Fluoroscopic time was also recorded.
Fluoroscopic injection

Procedure at our Institution: Fluoroscopic images during intra-articular injection of contrast in the hip joint.
Ultrasound Guided Injection

Procedure at our institution:
Top left and right images show transverse and longitudinal needle positioning in the joint, respectively.
Bottom left image shows injected fluid in the joint.
Results Fluoroscopy

- Suboptimal injections were mixed intra- and extra-articular injections.
- 0% unsuccessful procedures.
- Average fluoroscopic time was 82 seconds.
Results Ultrasound

- Suboptimal injections
  - 3 patients with mixed intra- and extra-articular injections.
  - 2 patients with extra-articular injection.
  - 1 patient with no contrast injection due to patient discomfort.
  - 1 patient with inadequate visualization of the hip joint.

<table>
<thead>
<tr>
<th>Ultrasound Guided Procedures</th>
<th>Successful %</th>
<th>Suboptimal %</th>
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<tbody>
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<td>77</td>
<td>23</td>
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Discussion

• Our comparison demonstrated a slightly higher success rate with fluoroscopic guidance compared to ultrasound guidance.
• This could be attributed to easier visualization of the joint and landmarks under fluoroscopy.
• Operator technique and experience may also be a contributing factor.
• Success rate of fluoroscopy is tempered by the exposure of patients and healthcare staff to radiation.

• Ultrasound guided procedures demonstrated a comparable success rate compared to fluoroscopic guidance.

• Ultrasound benefits include non-ionizing radiation.

• Patient stratification by body habitus could reveal higher success rates in smaller patients.
References
