

From Reuters Health Information Imaging Aids Joint Injection, Aspiration Accuracy



By Anne Harding

NEW YORK (Reuters Health) Feb 03 - Using ultrasound to guide injections into the joints can substantially improve accuracy, a new systematic review demonstrates.

"There are some instances where it makes sense to use imaging to make sure the injection is really delivered in the right place," says Dr. Brian J. Cole, a professor in the department of orthopedics at Rush University Medical Center in Chicago.

In a January 21 online paper in the American Journal of Sports Medicine, Dr. Cole and his colleagues note that research has shown anatomic palpation alone can lead to "poor" injection accuracy rates. Still, he told Reuters Health, he was surprised to see just how high the rate of inaccuracy can be when the injections are done without imaging guidance.

He and his colleagues performed a systematic review to investigate whether certain anatomic approaches for injection would be more accurate than others, and also to determine whether imaging improved accuracy.

The researchers identified 27 studies in which imaging had been used to verify the accuracy of injection or aspiration of the shoulder, elbow, or knee joint.

Five studies looked at the shoulder glenohumeral approach, including 73 shoulders injected through an anterior approach and 147 injected through the posterior approach. Average accuracy was 45% for the anterior approach and 85% for the posterior approach. However, the researchers found no difference in accuracy for various approaches to the subacromial space, the acromioclavicular joint, the elbow, or the knee.

However, the researchers report, imaging improved the accuracy for all of the joints they looked at aside from the elbow. For the glenohumeral joint, accuracy rate was 95% with imaging and 79% without imaging. Accuracy with imaging for the subacromial space was 100%, but 63% without imaging.

For the acromioclavicular joint, imaging-guided injections and aspirations were 100% accurate, compared to 45% for procedures performed without imaging. For the knee, image guided accuracy was 99%, while 79% of non-imaging guided injections/aspirations were accurate.

For the elbow, just one of the 42 injections included in the study was performed with imaging, making "meaningful statistical analysis" impossible.

When using the proper approach, Dr. Cole noted, it's fairly difficult to misplace an injection into the elbow. But for other joints, he adds, "we have great landmarks anatomically but the depth of the needle, depth of the soft tissue, soft tissue variability and so forth can lead to inaccurate placement despite having pretty good knowledge of our landmarks."

Based on the findings, he and his colleagues conclude, "Physicians wishing to improve accuracy rates of needle placement should consider using the posterior approach to the glenohumeral joint of the shoulder and imaging modalities when injecting or aspirating the glenohumeral joint, subacromial space, acromioclavicular joint, or knee."

Am J Sports Med. Posted online January 21, 2011. [Abstract](#)

Reuters Health Information © 2011
