

Diagnostic Value of H-reflex in S1 radiculopathy using Transforaminal Epidural Injection

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Objective

The H-reflex is widely utilized for the electrophysiological diagnosis of S1 radiculopathy. However, there is scant literature defining its sensitivity and/or specificity. We assessed the predictability of the H-reflex study in diagnosing S1 radiculopathy in patients with discogenic lower back pain (LBP) and radicular pain, using a fluoroscopy-guided transforaminal epidural injection of the S1 root.

Materials & Method

A retrospective chart review was conducted on 101 patients with discogenic lower back pain (LBP) and radicular pain affecting a unilateral lower extremity. All subjects underwent plain radiography and MRI of the lumbosacral spine, EMG studies, and C-arm-guided epidural steroid injections targeting the S1 nerve roots. Patients with systemic diseases causing polyneuropathy, spine fractures, and those with previous spine surgery were excluded. H-reflex abnormality criteria included the absence of the H-reflex, a side-to-side latency difference greater than 1.0 ms, and a decreased amplitude of less than 50% compared to the unaffected side. A Chi-square test was performed to determine significant pain relief in the group with abnormal H-reflex following the intervention.

Result

Among the 101 patients, fifty-one subjects exhibited an abnormal H-reflex. Of these, 37 patients (48.68%) experienced a favorable effect. The ROC curve for latency difference displayed an AUC of 0.618 (95% Confidence Interval: 0.431–0.805), with a cut-off value of 0.375, a sensitivity of 0.583, and a specificity of 0.583. The ROC curve for H-amplitude showed an AUC of 0.634 (95% Confidence Interval: 0.451–0.817), with a cut-off value of 1.30, a sensitivity of 0.583, and a specificity of 0.600.

Conclusion

These findings suggest that the H-reflex abnormality demonstrated fair predictability of clinical outcomes in C-arm guided transforaminal epidural steroid injections for S1 radiculopathy.