

2020 UNTHSC Conclave Resident Poster Session Form

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Nerve Conduction and Electromyographic Abnormalities Following Spinal Radiofrequency Ablation: A Systematic Review

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BACKGROUND/INTRODUCTION:

Spinal radiofrequency ablation (RFA) is used to improve low back pain in patients with spondylosis and facet-mediated arthropathy. Although precautions are taken, neurologic complications may arise, appearing as abnormalities found on nerve conduction study and electromyography (NCS/EMG).

METHODOLOGY:

A literature search of SCOPUS and PUBMED databases included these search terms: (electromyography OR EMG OR nerve conduction OR NCS) AND (radiofrequency OR radiofrequency ablation OR RFA OR neurotomy OR rhizotomy) AND (vertebral OR vertebrae OR spinal OR spine) AND (neurologic) AND (abnormality OR abnormalities OR complication OR complications). References from articles found were screened for additional relevant articles. Included articles described patients who previously underwent RFA and developed new-onset post-procedural neurologic complications with abnormal NCS/EMG findings. Exclusion criteria were (1) RFA in non-spinal locations, (2) alternative neurotomy methods, (3) no electrodiagnostic testing performed, and (4) no electrodiagnostic abnormalities.

RESULTS:

3 total articles - 2 case series and 1 case report - with 4 total patients met inclusion criteria. NCS/EMG performed showed left L5-S1 radiculopathy, right lumbosacral radiculopathy, L4-S1 lumbosacral plexopathy, and motor neuron absence resulting in severe kyphosis. 2 (50%) patients recovered with significant clinical improvement, 1 (25%) improved kyphosis with neurosurgical correction, and 1 (25%) had persistent sensory and motor deficits of the left leg.

CONCLUSION/DISCUSSION:

Neurologic complications are few because RFA of the spine is relatively safe; however, 4 patients showed NCS/EMG abnormalities. When new-onset post-RFA neurologic complications arise, there is often an indication for electrodiagnostic testing to correctly diagnose neurologic pathology, guiding treatment and management. One limitation of this study is the paucity of articles regarding electrodiagnostic studies after RFA. Future studies examining patients with electrodiagnostic abnormalities post-RFA will help evaluate procedural neurologic complications.

REFERENCES:

1. Coskun DJ, Gilchrist J, Dupuy D. Lumbosacral radiculopathy following radiofrequency ablation therapy. *Muscle Nerve* 2003;28(6):754-6.
2. Philip A, Gupta S, Ahrar K, Tam AL. A spectrum of nerve injury after thermal ablation: a report of four cases and a review of the literature. *Cardiovasc Intervent Radiol* 2013;36(5):1427-35.
3. Ahmed MM, Lake EB, Resnick DK. Progressive severe kyphosis as a complication of multilevel cervical percutaneous facet neurotomy: a case report. *Spine J* 2012;12(10):e5-e8.

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