

International Conference and Exhibition on

Pain Medicine

June 08-10, 2015 Chicago, USA

Effect of pulsed radiofrequency in treatment of facet-joint origin back pain in patients with degenerative spondylolisthesis

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Background: Degenerative spondylolisthesis is a well-recognized source of low back pain mainly induced by facet joint pain. Pulsed radiofrequency (PRF) allows heat dissipation, thus producing a temporary injury that affects only type C fibers responsible for pain conduction.

Objectives: We attempted to test whether PRF is a better choice for facet pain due to spondylolisthesis compared to routine steroid injection.

Methods: Patients were randomly assigned to one of two groups: group one received pulsed RF, and group 2 received injection by steroids (triamcinolone) and bupivacaine.

Outcomes Assessment: Multiple outcome measures were utilized which included the numeric rating scale (NRS), the Oswestry Disability Index (ODI), satisfaction status, and analgesic intake with assessment at 3, 6, and 12 months post-treatment. Significant pain relief was defined as 50 % or more, whereas significant improvement in disability score was defined as reduction of 40 % or more.

Results: Eighty patients were enrolled in the study and were divided into the two groups of study. PRF significantly reduced NRS at 6-month follow-up compared to steroid + bupivacaine. 75.6 ± 14.3 % at pre-treatment and 19.3 ± 9.5 % at 6 months ($p=0.001$) in PRF group. The mean ODI is depicted in two groups of study. Interestingly, ODI% was significantly lower in PRF group at 12 weeks and 6 months compare to steroid + bupivacaine group ($p=0.022$ and 0.03 , respectively), but it was not significantly different at 6 weeks ($p=0.31$). Proportion of patients who did not require analgesics were significantly higher in PRF group compared to other group ($p=0.001$) in Log-rank (Mantel-Cox) test.

Conclusion: Our results demonstrated that the application of PRF might be more effective than steroid and bupivacaine injection in decreasing back pain due to degenerative facet pain and improvement in function of patients.

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