

## CT Guided Pulsed Radiofrequency in Patients with Acute Low Back Pain and Sciatica: 1 Year Follow-Up versus Image-Guided Injection Only as Control Group

Tuesday 3:00-3:10 PM | SSJ26-01 | Room: S502AB

### PURPOSE

To determine the clinical impact of CT-guided Pulsed Radiofrequency in the management of patients with acute or sub-acute neuro-radicular pain from lumbar disc herniation, refractory to prolonged conservative treatment.

### METHOD AND MATERIALS

We conducted a single center, prospective, randomized trial (1:1) in patients with acute or sub-acute neuro-radicular low back pain (EMG confirmed), refractory to usual care (conservative). Pulsed radiofrequency (pRF) treatment was performed using a 22-20 G needle-electrode with probe tip directed to the symptomatic dorsal root ganglion under CT guidance; E-pulsed radiofrequency (Cosman G4) was administered for 10 min at 45V with constant local temperature of 42°C. Masking group received 1 to 3 sessions of CT-guided steroid injection on the same anatomical target. Primary outcome was clinical efficacy measured with Visual Analogue Scale (VAS), Oswestry Disability Index (ODI) and Roland-Morris (RM) score for quality of life assessment; all questionnaires were obtained at baseline and at 1-week, 1-3-6 and 12-month follow-up. Analyses were performed on a per-protocol basis.

### RESULTS

Of 260 patients enrolled, 128 patients received Pulsed Radiofrequency, 120 were treated with injection only strategy treatment. Median VAS scores decreased linearly in both groups; patients that received radiofrequency obtained greater significant overall improvement in pain and disability scores during the first year ( $P < 0.001$ ). Relief of leg pain was faster for patients assigned to pRF ( $P < 0.001$ ). Patients assigned to pRF also reported a faster rate of perceived recovery (hazard ratio, 1.97; 95% confidence interval, 1.72 to 2.22;  $P < 0.001$ ). The probability of perceived recovery after 1 year of follow-up was 95% in the pRF group and 61% in the injection only group. There were 6 patients considered partial responders that required a second PRF session. Eight patients required further surgical management.

### CONCLUSION

The 1-year outcomes demonstrated CT-guided Pulsed Radiofrequency superior to injection only strategy. pRF is an effective and repeatable percutaneous treatment option for patients with acute or sub-acute neuro-radicular low back pain.

### CLINICAL RELEVANCE/APPLICATION

The results of this study are superior to those reported from literature for usual care strategies and injections and may avoid surgery for a substantial number of patients with sciatic disc compression.