



# Efficacy of Radiofrequency Neurotomy for Lumbar Facet Syndrome and Sacroiliac Joint Pain

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## INTRODUCTION

Low back pain (LBP) is one of the most common health problems, representing the world's leading cause of years lived with disability (YLD) (1), the second most frequent reason for primary care consultation and a frequent motive for neurosurgical referral (2). Lifetime prevalence of LBP ranges from 60 to 90% (3,4) and this condition remains a major cause of activity limitation and work absence, causing an enormous economic burden (5,6). Facet joints can be a source of chronic and persistent spinal pain and have been implicated in 15–45% cases of axial LBP. Lumbar facet joints are responsible for local and referred pain to adjacent areas (7). Sacroiliac joint (SIJ) pain is also a challenging condition accounting for approximately 20% of cases of chronic LBP (8). We aimed to evaluate the efficacy over time of percutaneous radiofrequency (RF) neurotomy for lumbar facet syndrome and SIJ pain.

## METHODS

Retrospective study of all consecutive cases of continuous percutaneous medial branch RF for lumbar facet syndrome and SIJ pain, carried out between November 2009 and December 2013, in one center, by a single neurosurgeon. All patients treated had predominant chronic axial LBP or SIJ pain for >6 months and failure to achieve adequate pain relief with conservative treatment. Patients who exhibited a radicular pattern of pain or neurogenic claudication were not submitted to this treatment. Some of the cases treated with RF had undergone spinal surgery before or had indication for surgical fusion at the moment of intervention, but refused or didn't have medical conditions to do so. Diagnostic blocks of the lumbar facet joints or of the SIJ involved were performed and

RF denervation was performed as an ambulatory surgical procedure using superficial anesthesia while placing the electrodes and confirming the provoked pain was similar to the usual complain. Under the effect of intravenous sedation, neurotomy of the dorsal ramus medial branches, of the relevant facet joints, was carried out using continuous RF at a set temperature of 85°C for 90 seconds. Outcome measure was pain intensity on the NRS, at baseline and at 1, 3, 6, 12, 18 and 24 months after radiofrequency. Statistical analysis was calculated with Prism6 v.6.0 for Mac OS-X.

## RESULTS

Sixty patients were treated with RF neurotomy for lumbar facet syndrome and SIJ pain during the study period, but 8 were lost to follow-up. Of the 52 patients evaluated 40 were female and 12 were male, with a mean age of 54±14 years (Table 1).

Table 1. – Demographics and clinical data.

DEMOGRAPHICS AND CLINICAL DATA	
Number of patients that underwent radiofrequency	59
Loss of follow-up	7
Total of patients included in the study	52
Follow-up in months (meansSD)	13.10±7.79
Age (meansSD)	54±14
Gender F/M	40/12
Mean basal NRS	8.4
Patients with multifactory axial back pain	25

Rate of efficacy (defined as at least 50% pain relief, using the NRS) was 76.9% at 1-month, 71.2 % at 3-months, 61.0% at 6-months, 54.6% at 12-months, 49.1% at 18-months and 43.0 % at 24 months (Fig.1, Fig.2).

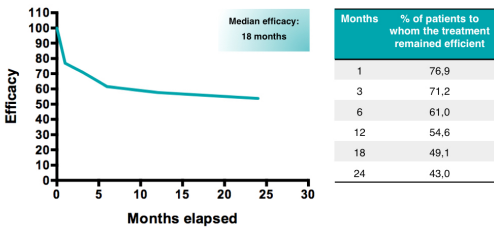


Fig. 2 – Rate of efficacy defined as ≥50% pain relief using NRS.

RF neurotomy had a higher rate of efficacy, for a longer period of time, in patients with facet pain alone in comparison with patients with multifactorial axial lower back pain, but this difference was not statistically significant (Fig.3).

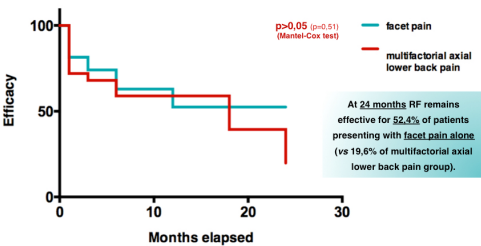


Fig. 3 – Rate of efficacy defined as ≥50% pain relief using NRS in patients with facet pain alone vs patients with multifactorial axial lower back pain.

Ninety-two percent of patients considered the treatment successful and 88.5% would repeat it, if needed (Fig.4).

There was no difference in efficacy between patients treated for facet pain or sacroiliac joint pain (p=0.67).

No patient had any complications.

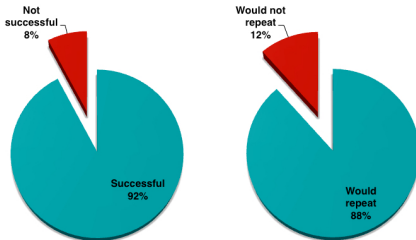


Fig. 4 - Success of treatment and satisfaction of patients.

## DISCUSSION / CONCLUSIONS

RF neurotomy was useful for treatment of lumbar facet syndrome and SIJ pain. Efficacy endpoints for the treatment during follow up are similar to those reported in literature (9). Mean duration of pain relief after initial RF neurotomy was slightly higher than previously reported (18 months in our study, compared to the 10-15 months described by other authors) (10). Despite of gradual loss of efficacy, at 2-years 40% of patients maintain a 50% reduction of pain intensity. Therefore this procedure can be used for treatment of carefully selected patients with chronic LBP.

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