

[2003 Fall A5] Pulsed Radiofrequency Neurotomy (PRFN) registry: Efficacy and safety - short term data

Ahadian F, Braun J
University of California, San Diego, La Jolla, CA, USA

Introduction: RF neurotomy is a proven effective treatment for facet and sacroiliac arthropathy. However, early reports of deafferentation pain syndromes and motor deficit effectively halted further development of this technology over the past three decades. In 1997, Slappendel and colleagues reported that RF treatment of the DRG at 40 C is equally effective as treatment at 67 C. 45 C is the threshold for irreversible neural damage. Therefore, low temperature RF may markedly increase the safety of this modality and expand its therapeutic applications without sacrificing efficacy.

Objective: The aim of the current study is to obtain initial data on low temperature RF to determine if further prospective clinical trials may be indicated.

Methods: After IRB approval the UCSD-PRFN Registry was established. Data for all patients treated with PRFN at UCSD between 3/2000 and 7/2002 were captured. Inclusion criteria included pain greater than three months and radiofrequency lesion temperature of 42-45 C. Subjects with prior neurolytic treatment for the same diagnosis were excluded. Treatment responses were divided into 5 categories: Excellent, Good, Fair, No change, and Worse pain. The records were reviewed for any complications, and specifically for post-op pain, muscle spasms, infection, bleeding, weakness, numbness and dysesthesias.

Results: 194 entries satisfied the inclusion and exclusion criteria. The overall PRFN response rate was 67%. The combined response rate for C-facet, L-facet and SI was 70%. High temperature RF response rates for these diagnoses have historically been reported to range from 45-89%. The overall complication rate from PRFN was 7%. There were no complications lasting beyond one month. There were eight reports of post-op pain, 2 reports of muscle spasm, one report of skin infection and 5 reports of post-op dysesthesias. Cervical and lumbar radiculopathy had the highest complication rates, including post-op pain and dysesthesias

Conclusion: Results support the hypothesis that PRFN is as efficacious as high temperature RF for treatment of facet and SI arthropathy. PRFN also appears to be indicated for a variety of other chronic pain conditions. The risk-benefit ratio for treatment of radiculopathies appears less favorable. The current data justifies further prospective clinical trials on PRFN.

References:

1. Ahadian FM: Pulsed radiofrequency neuromodulation: New advances in pain management. *Progress in Anesthesiology* 2002; XVI: 187-200
2. Shealy CN: Percutaneous radiofrequency denervation of spinal facets. Treatment for chronic back pain and sciatica. *J Neurosurg* 1975; 43: 448-51
3. Slappendel R, Crul BJ, Braak GJ, Geurts JW, Booij LH, Voerman VF, de Boo T: The efficacy of radiofrequency lesioning of the cervical spinal dorsal root ganglion in a double blinded randomized study: No difference between 40 C and 67 C treatments. *Pain* 1997; 73: 159-63

Table 1: PRFN RESPONSE RATES - 3 Month F/U

DIAGNOSIS	#SUBJECTS	REGF %	REG%	C %
ALL	194	67	58	7
C-Facet	17	77	71	0
L-Facet	52	66	56	8
SI	39	74	66	8
C-Radic	5	40	40	20
L-Radic	25	64	44	20
Comp-Fx	4	75	75	0
P-Nerve	25	56	52	0
CRPS	12	83	58	0
Pelvic	12	50	50	17
C-HA	9	100	88	0

REGF % - Overall response rate (includes excellent, good, fair)

REG % - Excellent and good responders only

C % - Complication rate

C-Facet - Cervical facet arthropathy

L-Facet - Lumbar facet arthropathy

SI - Sacroiliac arthropathy

C-Radic - Cervical radiculopathy

L-Radic - Lumbar radiculopathy

Comp-Fx - Vertebral compression fracture

P-Nerve - Peripheral nerve lesion

CRPS - Complex regional pain syndrome

Pelvic - Pelvic and lower abdominal pain

C-HA - Cervicogenic headaches

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