



Retrospective observational study to evaluate the efficacy of Radiofrequency in the treatment of Chronic Pharmaco-resistant Low Back Pain

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BACKGROUND AND AIM

Low back pain (LBP) is widespread. Though estimates vary widely, studies in developed countries report point prevalences of 12% to 33%, one-year prevalences of 22% to 65%, and lifetime prevalences of 11% to 84%. It is more common among women and people aged between 40 and 80. Nonspecific mechanical LBP is the fifth most common reason for visits to Primary Care in the United States. Furthermore, it is the second most common symptomatic reason, accounting for approximately 2.3% of all physician visits. LBP is also very costly. Annually, the total costs of LBP are estimated to be US \$100 billion in the USA. Additional costs are associated with days lost from work due to LBP. Many patients with acute episodes of LBP do not seek care because symptoms are often brief and self-limited. Among those who do seek medical attention, rapid improvements in pain, disability, and return to work are seen in the first month. Twenty to sixty percent of patients experience one or more exacerbations within one year of the first episode. LBP becomes chronic in 2-7% of cases, despite the conservative therapy is in continuous development. Radiofrequency technique is a possible therapeutic strategy for chronic pharmaco-resistant LBP. Our study compares the efficacy of continuous (CRF) and pulsed (PRF) radiofrequency for this condition.

RESULTS

Etiologic Diagnoses (n=60)	Pain features		Efficacy		
	Type	Anatomical source	1 month	2 month	3 month
Spondylodiscoarthrosis (n=25)	No (n=25)	Axial	96%**	96%**	88%**
	Ne (n=0)	-	-	-	-
Spondylodiscoarthrosis + vertebral canal stenosis (n=9)	No (n=5)	Axial	100%**	80%**	80%**
	Ne (n=4)	Axial + Radicular	25%	25%	25%
Spondylodiscoarthrosis + spinal disc herniation (n=26)	No (n=12)	Axial	91,6%**	83,3%**	83,3%**
	Ne (n=14)	Axial + Radicular	28,6%**	28,6%**	28,6%**

CRF of articular facets

Etiologic Diagnoses (n=60)	Pain features		Efficacy		
	Type	Anatomical source	1 month	2 month	3 month
Disc herniation (n=20)	No (n=6)	Radicular	66,6%**	66,6%**	50%**
	Ne (n=14)	Radicular	85,7%**	78,6%**	71,4%**
FBSS (n=10)	No (n=4)	Radicular	50%**	50%**	25%**
	Ne (n=6)	Radicular	66,6%	66,6%	50%
Vertebral canal stenosis (n=18)	No (n=4)	Radicular	50%**	50%**	25%
	Ne (n=14)	Radicular	71,4%**	57,1%**	35,7%**
Disc herniation + vertebral canal stenosis (n=18)	No (n=4)	Radicular	50%**	25%	25%
	Ne (n=8)	Radicular	75%**	50%**	37,5%**

PRF of dorsal root ganglion

MATERIALS AND METHODS

This is a single-center retrospective study: 120 (51 male and 59 female; mean age 62 ± 12) patients with chronic LBP that has not responded to conservative therapy were enrolled from January 2015 to May 2017. All patients were treated with radiofrequency. From the hospital database, the following demographic information was collected: age, sex, etiology of pain, type of pain, anatomic source of pain, type of RF, periprocedural complications and VAS value before (mean VAS pretreatment 7,48 ± 3,4) and after 1, 3 and 6 months from treatment. RF type depended on the etiology. The primary outcome was pain intensity (reduction of 50% or 3 points of VAS value) measured 1, 3, and 6 months after the intervention. Data analysis considered three variables: etiology, type of pain, and anatomic origin of pain.

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> Chronic LBP (≥ 3 months) No response to drug therapy Diagnosis of spondylodiscoarthrosis (with or without hernia or stenosis), disc hernia, vertebral canal stenosis, hernia+stenosis, FBSS 	<ul style="list-style-type: none"> Other diagnoses: vertebral fractures, spinal deformity, infections (e.g. osteomyelitis, discitis), primitive or secondary malignancies, fibromyalgia, somatoform disorder, referred visceral pain (e.g. endometriosis, pyelonephritis, abdominal aortic aneurysm, pancreatitis, prostatitis) Surgery to correct the vertebral defect in the six months post-RF Impossibility to contact patients

CONCLUSIONS

Analyzing the effectiveness of the two types of RF, independently from the etiological diagnosis, it is noted that CRF and PRF represent an effective therapeutic strategy with high success rates: are equivalent to 1 month after treatment while at 3 and 6 months PRF appears to be less effective. The literature data show an effectiveness ranging from 40-65% depending on etiopathogenesis. All scientific studies report evidence of efficacy based only on etiological diagnosis and not on the type of pain. In our study, the combination of aetiological diagnosis, type of pain and anatomical source of pain allows to subdivide patients with LBP into subgroups and to analyze their benefits over time. It appears from that subdivision that the CRF and the PRF do not represent an effective therapy in all patient subcategories, whereas there is a heterogeneity of response to treatment. CRF is particularly effective in patients with spondylodysarthrosis with axial nociceptive pain. In the form associated with stenosis or hernia the CRF is less effective. This, however, does not depend on the presence of hernia or stenosis but on the type of pain (nociceptive or neuropathic). The PRF is more effective in neuropathic pain. The greater effectiveness is evident in the radicular neuropathic pain from disc hernia.

*Relationship between etiological diagnosis, type of pain and anatomical source of pain: efficacy at 1 to 3 and 6 months. The data was analysed by t-Test. *p<0.05; **p<0.001 baseline, 1, 3 and 6 months. No= Nociceptive pain; Ne= neuropathic pain*