

Evaluation of Quality of Life Improvement in Patient with Sacroiliac Joint Pain After Modified Radiofrequency Technique: A Four-year Retrospective Study

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Introduction

Sacroiliac joint (SIJ) dysfunction is one of the most common causes of lower back pain. Diagnosis of the SIJ pain is challenging due to the anatomy. There are different factors that pertain to the etiologic cause of pain in this joint. These factors include leg length discrepancy, biomechanical abnormalities, trauma, scoliosis, surgery, and pregnancy (1-3).

There are different treatment modalities for this pain. Radiofrequency (RF) neurotomy is one of the effective interventional modalities. Cohen et al. described different techniques for RF. These techniques included conventional, bipolar, and cooled RF (1).

In a systematic review by Hansen et al., there was fair evidence for short and long-term relief after cooled RF, pulsed RF, conventional RF, and intra-articular steroid injection (4).

At Allevio Pain Management Clinic, there are two different methods for SIJ RF. They include quadripolar RF and the modified technique (MRF) (5).

Methods

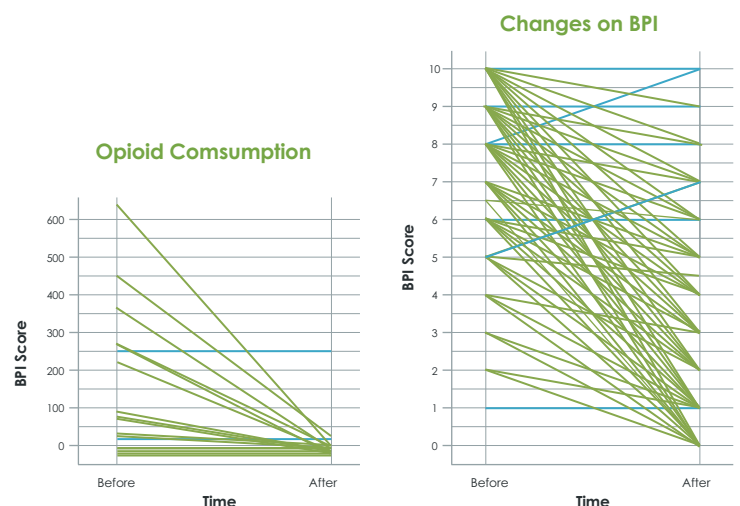
This is a retrospective observational study at Allevio Pain Management Clinic, Toronto, Canada. A total of 266 patients had been diagnosed with SIJ pain and had modified RF ablation from 2015-2018.

To evaluate the quality of life improvement, we used the BPI questionnaire. Other information such as pain-free interval, return to work, changes in opioid pain medications after the procedure, as well as descriptive statistics were presented as mean (SD) and median (interquartile range (IQR)) for continuous variables and frequency (%) for categorical variables.

The analysis of individual changes on opioid use and changes of BPI per item before and after the treatment were analyzed by a paired t-test. The effects of lidocaine/ketamine use were analyzed separately by item, using a paired t-test, and by univariate linear regression using lidocaine/ketamine as an explanatory variable. The changes in BPI scores was the outcome. Similarly, univariate linear regression models were also applied to analyze the association between BPI score changes, with sex and age as explanatory variables.

Table 1. Mean BPI Before and After Intervention, Mean Difference and P-Value Obtained from Paired T-Test.

Item	Before	After	Mean Difference	P-Value
General Activity	7.96 (1.87)	3.22 (3.98)	-4.72	<0.001
Mood	7.42 (2.42)	3.07 (3.08)	-4.33	<0.001
Work	7.98 (2.02)	3.16 (3.05)	-4.87	<0.001
Walking	7.77 (2.19)	3.20 (3.08)	-4.57	<0.001
Sleep	7.56 (2.52)	3.09 (3.07)	4.47	0.001
Socializing	6.89 (2.71)	2.94 (3.03)	3.86	<0.001
Life Enjoyment	7.95 (2.19)	2.87 (2.89)	-4.86	<0.001



Results

Changes in BPI seem to be independent of sex and age. After SIJ MRF, all reported items indicated a significant improvement in BPI (more than four points) ($p \leq 0.001$).

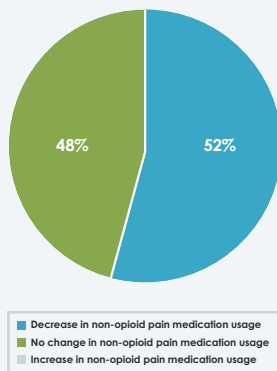
In total, there was a significant reduction (15.85 units) in consumption of opioids (p -value=0.002) after the procedure.

A significant mean reduction of 32.19 units was observed (p -value=0.001) for participants who were using opioids (98 subjects) before and after intervention.

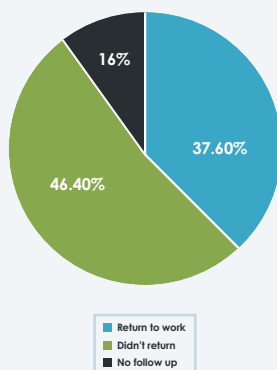
Only four subjects reported a small increase in non-opioid pain medication usage, 102 (44%) patients had discontinued or decreased their usage, and 126 (56%) were not using any non-opioid pain medication before or didn't show any changes.

From the 266 patients in the sample, 141 (53%) were retired. From the remaining, 123 patients were actively working before treatment, 47 (38.2%) went back to work after intervention, and 58 (47.1%) did not go back to work.

Non-Opioid Pain Medication Usage



Work Status After Treatment



Conclusion

The SIJ MRF technique is an innovative technique by Dr. Ramin Safakish. In this technique, produced lesions are significantly larger in the area compared to the lesion produced using the standard quadripolar technique. It produces a thermal lesion within the interosseous ligaments (6).

Further prospective investigations will be needed.

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