

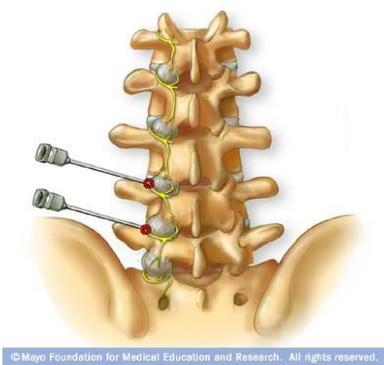
Can Radiowaves Cure Pain? An audit of one practitioner's experience in three hospitals

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Introduction

Radiofrequency is a treatment modality in chronic pain. It uses a high frequency alternating current to generate heat to thermocoagulate nervous tissue, which interrupts the transmission of pain impulses. In some cases, more than one electrode is placed adjacent to the nerve to increase the size of tissue coagulation hence increasing the likelihood of destroying the offending nerve. In addition to continuous thermal radiofrequency, there is also emerging evidence that even at lower temperatures, pain transmission may be interrupted without destruction of the nerve. This is achieved with short bursts of radiofrequency where the temperature is allowed to dissipate between the radiofrequency bursts. The advantage of pulsed radiofrequency is that it does not cause tissue destruction and as such allows the practitioner to treat mixed nerves with cutaneous innervations that could otherwise not be targeted due to the risk of deafferentation pain.



Methods

In this audit, all of Dr. Taverner's patients who had radiofrequency treatment for a period of one year were evaluated. Initially all patients were seen in the consulting rooms where the pain was assessed. Then they were scheduled for diagnostic blocks, where the suspected nerve was blocked with 2% lignocaine and subsequently a comparative block with a longer acting local anaesthetic (bupivacaine). Radiofrequency treatment was offered when there was consistent improvement in pain.

A preoperative and postoperative questionnaire was given to patients on the day of the procedure and 4-6 weeks after the procedure. Patients who did not complete the questionnaire were contacted by the researcher.

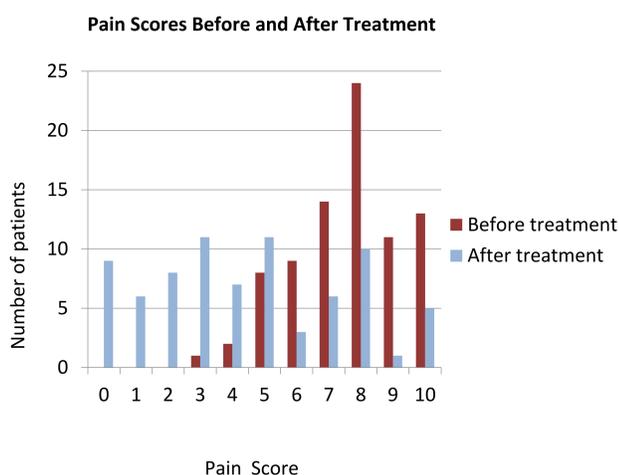
Results

Over a period of one year, there were 90 admissions to 3 different hospitals for radiofrequency treatment. Patient's age ranged from 31 to 97 years old with the average age being 65 years. A wide range of areas were treated including:

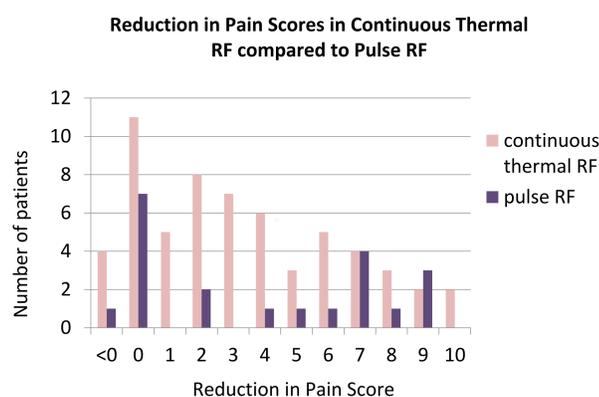
Area treated	Number of patients
Cervical spine	15
Thoracic spine	12
Lumbosacral spine	50
Hip	3
Knee	10
Ankle	1
Other	2

Pain scores

In the preoperative and postoperative questionnaire, patients were asked to rate their pain on a numerical pain scale. On average pain scores were 7.6 prior to treatment and had reduced to 4.4 post treatment. However the point of follow up was variable, with most at 4-6 weeks and but others longer. Hence some patients who may have had transient improvement may not be picked up. Furthermore the nature of radiofrequency treatment is that pain may return with time and require further treatment, therefore the longer the follow up, the more likely that there is a less dramatic improvement in pain scores. However the return of pain was very variable with one patient reporting a 9 point reduction in pain score even after 6 months while in others it may only last for a few weeks.



Despite the greater evidence supporting continuous thermal radiofrequency, in our series there was a greater reduction in pain scores amongst patients treated with pulse radiofrequency compared to continuous thermal radiofrequency; (continuous RF pain score reduction from 7.4 to 4.5, pulse RF pain score reduction from 8.0 to 3.9.) This may be a reflection of the smaller sample size in the pulse group compared to continuous thermal group.



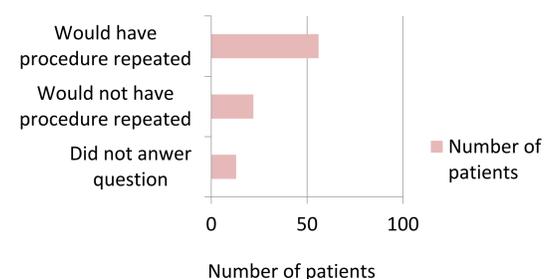
On top of 18 patients in which radiofrequency treatment had no benefit, 4 patients in the continuous thermal radiofrequency group and 1 patient in the pulse radiofrequency group complained of worsened pain post treatment. There could be many explanations for worsening pain including daily fluctuations of pain level

with activity, especially since 3 of the 5 patients only complained of a one point deterioration. One patient in the continuous thermal group complained of a 4 point worsening in pain score post thoracic gangliotomy which is most likely due to progression of disease while another patient in the same continuous thermal radiofrequency group complained of a 5 point worsening in pain score after bilateral cervical radiofrequency treatment, which he attributed directly to his treatment causing a 'frozen neck'.

Satisfaction with Hospital Visit and Treatment

Overall patient satisfaction with the care they received during their hospital visit was high averaging 9.3 in Frankston hospital, 8.9 in Beleura hospital and 8.8 in Frankston Private Day Surgery. This reflects the high standard of care given by hospital personnel throughout these hospitals.

Most patients were also satisfied with the overall procedure and outcome, with an average satisfaction of 6.8 out of 10. Furthermore 56 patients said that they would be happy to have the same procedure repeated in the future for the same result, while 22 said they wouldn't have the procedure repeated and 13 did not answer the question. One of the difficulties in pain research is the significance of the improvement of pain to the patient. 2 patients who responded 'yes' to have the procedure repeated for the same result did not even have a 1 point improvement in pain score but was happy to have another attempt at RF. The first said he would try it again because the risk benefit ratio was acceptable to him, and the possibility that a second treatment would work was worth it. The second was happy to have another treatment in an attempt to block missed segments. On the other hand, another patient who had 2 months of complete pain relief would not have the procedure again because he could achieve the same results with oral medication and not have to take time off work or wait in the hospital.



Conclusion

In conclusion this audit shows that radiofrequency treatment is a beneficial component to holistic pain management. In addition most patients were satisfied with their hospital visit and overall procedure. However additional research in chronic pain management is required to further extend our understanding of radiofrequency treatment and other treatment modalities for chronic pain.

*this poster is an excerpt of the full audit