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COMPARISON OF FACET DENERVATION AND FACET JOINT INJECTION FOR THE TREATMENT OF CHRONIC LOWER BACK PAIN

KRONİK BEL AĞRISI TEDAVİSİNDE FASET EKLEM DENERVASYONU İLE FASET ENJEKSİYONUNUN KARŞILAŞTIRILMASI

Selçuk ÖZDOĞAN[1],
Ali Haluk DÜZKALIR[2],
İsmail İŞTEMEN[3]

[1]Yeditepe University Faculty of Medicine, Department of Neurosurgery
[2]Muş State Hospital
[3]Private Guney Adana Hospital

SUMMARY

Purpose: The aim of our study is to compare the pain score results of patients treated with facet injection or facet denervation, to understand which technique is more effective.

Materials and Methods: 28 patients who were treated by facet denervation with radiofrequency thermocoagulation and 28 patients who were treated with facet injection due to chronic lower back pain in Muş State Hospital were retrospectively inspected. Physical examination showed local tenderness of the lumbar region, and pain with rotation and hyperextension movements. Numerical pain scoring of the chronic lower back pain on a scale of 0 to 10 was used for the evaluation of pain, where 0 defines no pain and 10 is the worst pain. Scoring was repeated at months 1 and 3 after surgery.

Results: According to the pain score, the complaints of the patients reduced at a rate of 58% at the end of the first month, and 71% at the end of the third month, on facet denervation treatment. The mean was 50% at the end of the first month, decreasing to 20% for the third month, on facet injection treatment.

Conclusion: When comparing facet injection and facet denervation, this study shows that facet denervation with radiofrequency thermocoagulation is a more effective minimally invasive treatment. Proper patient selection and application of the process to the appropriate anatomical points are factors allowing better results to be achieved.

Key Words: Facet joint denervation, facet injection, chronic lower back pain, radiofrequency thermocoagulation denervation

Level of Evidence: Retrospective clinical study, Level III

ÖZET

Amaç: Çalışmamızın amacı, faset eklem enjeksiyonu uygula- nan hastalar ile faset denervasyonu uygulanan hastaların ağrı skorlarının karşılaştırılması sonucu hangi işlemin daha etkin olduğunu araştırmaktır.

Materyal-Metod: Muş Devlet Hastanesi'nde kronik bel ağrısı nedeni ile faset enjeksiyonu yapılmış 28 hasta ve radyofre- kans termokoagülasyon ile faset denervasyonu uygulanmış 28 hasta retrospektif olarak incelendi. Hastalarda fizik mua- yene bulgusu olarak palpasyon ile lomber bölgede hassasiyet ve rotasyon ve hiperekstansiyon hareketlerinde ağrı saptandı. Hastalarda nörolijik defisit saptanmadı. Kronik bel ağrısı nu- maralandırılmış ağrı skorlaması ile 0-10 değerleri arasında, 0 hiç ağrı yok ve 10 en yüksek ağrı şeklinde tanımlanarak skor- landı. Hastalar işlemler sonrası 1. ay ve 3. ay kontrollere çağrıla- rak tekrar skorlamaları yapıldı.

Sonuçlar: Faset denervasyonu uygulanan hastaların 1 aylık takipleri sonucu ağrı skorlarına göre şikayetlerinin % 58, 3 ay sonrasında % 71 oranında azaldığı görülmüştür. Faset enjeksi- yonu yapılan hastalarda ise 1. ay sonunda ağrı azalma değişim değeri % 50 iken 3. ay sonundaki değer % 20 ye gerilemiştir.

Çıkarım: Radyofrekans termokoagülasyon ile faset dener- vasyonu faset eklem enjeksiyonu ile karşılaştırıldığında daha etkin bir minimal girişimsel tedavi seçeneğidir. Doğru hasta seçimini ve işlemi doğru anatomik noktaya uygulamak başarı oranında etkin olan faktörlerdir.

Anahtar Kelimeler: Faset eklem denervasyonu, faset enjeksiyonu, kronik bel ağrısı, radyofrekans termokoagülasyon denervasyon

Kanıt Düzeyi: Retrospektif klinik çalışma, Düzey III

Address: Selçuk ÖZDOĞAN, Yeditepe Üniversitesi Hastanesi Beyin Cerr. Devlet Yolu Ankara cad. No:102 İçerenköy-Ataşehir / İSTANBUL
Tel.: 0506 7637173
E-mail: drselcukozdogan@hotmail.com
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INTRODUCTION

Lumbar facet joints are synovial joints taking the form of ongoing interconnected couples, and end at the sacrum with the fifth lumbar vertebra[4]. Facet joints are innervated by medial branches of the dorsal rami[1,8]. In this study, we denerve these branches of the medial nerve with a radiofrequency thermocoagulation method.

As a result of neuroanatomical, neurophysiological and biomechanical studies, nerve endings have been detected in facet joints[8,13]. Facet joints include low sensitivity mechanoreceptors, mechanically-sensitive nociceptors, and silent nociceptors. These joints are resistant to high stress and spinal load[7,8]. Facet joint pains are among the pains defined in the spine[14]. If the facet joint pains are in the neck, distribution is toward the upper extremities[11,16], if they are in the region of the back, distribution is toward the anterior chest wall[9,10] and if they are in the lower back, distribution is toward the lower extremities[12,15].

Steroids, local anesthetics or similar drugs can be applied by entering this joint with a needle monitored by fluoroscopy[2,3]. The joint structure can be examined, or the localization for the injection can be determined, by injecting a contrast substance into the joint. When steroids are injected into the joint, this is called steroid injection, and when local anesthetics are given, this is called joint block[2].

The aim of this study is to compare the techniques of facet injection and facet denervation, and to understand which method is more effective, by comparing the results of pain scores of patients who were treated with these techniques.

MATERIALS AND METHODS

In Muş State Hospital, 28 patients treated with facet injection (FI) and 28 patients treated with radiofrequency denervation (FD) due to chronic lower back pain from 01 February 2012 to 31 December 2012 were retrospectively evaluated. Palpation, sensitivity in the lumbar region and pain on rotation and hypertension movements were detected in physical examinations of the patients. No neurological deficit was detected in the patients.

Chronic lower back pain was numbered for scoring pain on a scale between 0 and 10, where zero was defined as no pain and ten was defined as the worst pain. On MRI evaluation of the patients, no disc hernia was seen.

SURGICAL TECHNIQUE

After antibiotic prophylaxis, the patients to be treated by facet injection were rolled over. The injection site was cleaned with batticon and covered up sterilely. The injection site was visualized by fluoroscopy (Figure-1) and a 22-gauge 0.7 mm spinal needle was inserted. At every phase, 0.5 cc depomedrol, 2 cc marcaine and 1 cc citanest solution was prepared and injected.

After antibiotic prophylaxis, the patients to be treated with facet denervation were rolled over. After positioning, the application site was cleaned with batticon and covered up sterilely. The midline was determined by marking the spinous processes. The facet joint application sites were marked with fluoroscopy and the level receiving treatment was anesthetized locally. Under fluoroscopy, a 21-gauge 10 cm guide needle was sent percutaneously to the medial nerve transition zone of the facet joint to be processed, using lateral transverse and lateral images (Figure-2,3). A thermocoagulation probe was attached after removing the guide needle. Then, the FD process was begun. The two-minute radiofrequency thermocoagulation process was completed using 80° heat. The heat probe was removed through the inside of the guide and the guide needle was then removed. There were no complications observed in the patients.

Figure-1: Anterior–posterior lumbar fluoroscopy image of facet injection

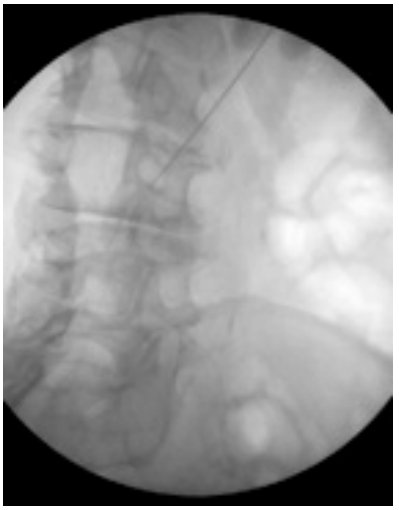

Figure-2: Lumbar transverse fluoroscopy image of facet denervation needle

Figure-3: Lumbar lateral fluoroscopic image of the facet denervation needle

FOLLOW-UP

Patients were able to be discharged the same day. After the FD and FI processes, the patients were called for follow-up at one month and three months, and their numbered pain scores were recorded. The percentage difference between the values was calculated, and the mean values were found.

RESULTS

The complaints of the patients treated with FD reduced at a rate of 58% after one month and at a rate of 71% after three months. The pain reduction exchange values of the patients treated with FI reduced at a rate of 50% after one month and 20% after three months.

DISCUSSION

The prevalence of facet joint syndrome has been reported as 15–52%[3]. Drug treatment, physiotherapy and surgical treatment constitute the majority of treatment methods.

In addition to conservative treatments and surgical treatment, facet joint denervation with radiofrequency and facet joint injection have emerged as different treatment options[6].

In many studies performed on the FD and FI applications, the efficacy of FI seems to decrease in the long term, although the short-term results of FI are good[5,6]. It has also been observed that the efficacy of FD increases in the long term, and the patient population is more satisfied. The result of this study supports the literature, and the 71% reduction seen with FD is superior to the reduction of 20% seen with FI in the long term.

In a study performed by Slipman et al., while the results of facet joint injection were limited, facet denervation gave better results, and was subsequently chosen for the treatment of chronic lower back pain[7].

Boswell et al. examined the results of treatment of chronic lower back pain performed between 1966 and 2006. It was observed that scores for facet joint injection were good in the short term, but they decreased in the long term. On the other hand, it was found that scores for facet denervation were good in both the long and short terms[6,7].

CONCLUSION

When facet denervation with radiofrequency thermocoagulation and facet joint injection are compared, facet denervation is a more effective minimally invasive treatment choice. Proper patient selection and application of the process to the appropriate anatomical point are the effective factors for success.

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