



Patients' response to facet joint injection

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The aim of the present study was to assess prospectively patients' response to facet joint injection performed for lumbar back pain, and to check if it correlates with the response predicted by the Helbig and Lee scoring system.

Fifty-seven patients who had facet joint injections for mechanical low back pain unresponsive to medical treatment, were followed-up. Patients' perception of improvement following the procedure was recorded : complete relief, partial relief, no change, worse. This response was compared with the response predicted by the Helbig and Lee score.

Fifty-one patients out of 57 were available for follow-up. At the first follow-up visit (after 8 weeks) 27 (53%) of the patients claimed relief (complete relief : 15 or 29%, partial relief : 12 or 24%), no relief : 23 or 45%, worse : 1 or 2%. Surprisingly, at the second follow-up visit (after 6 months) 35 (68%) of the patients reported improvement (complete relief : 16 or 31%, partial relief : 19 or 37%), no relief : 16 or 31%. Patients with low Helbig and Lee scores were as likely to improve as those with high scores : the response to the infiltration did not correlate with the predicted response.

Spontaneous improvement due to the natural history of back pain, may explain the late results. It is difficult to predict which patients will benefit from facet joint injections.

Keywords : back pain ; facet joint ; zygapophyseal joint ; injection.

INTRODUCTION

Low back pain is one of the commonest complaints. It is not a well-specified entity and it can

originate from any of several pain-sensitive foci, one of which is the facet joint. Facet joint injections are commonly used in the treatment of low back pain caused by facet joint arthropathy, but there is no consensus on the therapeutic value of this treatment modality. Though some studies have quoted long-term success rates up to 63% (2), other authors have even questioned the existence of a 'facet joint syndrome' (7).

It is difficult to isolate specific spinal structures as the source of mechanical back pain. It has been stated that poor results of facet joint injections can be attributed to failure to clinically identify patients whose back pain is primarily due to facet joint arthropathy (10). Clinical scoring systems, like the Helbig and Lee score (5), have been developed to help identify the patients who are likely to benefit from these injections. This score focuses on clinical findings that are widely accepted to indicate facet joint pathology : back pain with groin or thigh pain : 30 points ; well-localised paraspinal tenderness :

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20 points ; reproduction of pain with extension-rotation : 30 points ; corresponding radiological changes : 20 points ; pain below the knee : *minus* 10 points. A score of 60 points or more (maximally 100) is said to be associated with a high probability of satisfactory response to facet joint injection (100% prolonged response in the study of Helbig and Lee) (5).

In our unit, facet joint injections are used in patients with chronic low back pain, to give temporary relief and as an aid to their rehabilitation. This study was conducted as an audit, in order to assess patients' response to facet joint injection and to check if the response would correlate with their Helbig and Lee score. This in turn would help to select appropriate patients in the future.

MATERIALS AND METHODS

This prospective study was performed in the period 1999-2000, after approval by the hospital audit board. Patients with mechanical low back pain (> 3 months duration), not responsive to conservative treatment, were listed for facet joint injection after an informed consent. Mechanical back pain was defined as low back pain which was improved by rest, worse with activity and not increased by coughing. Patients with signs of nerve root tension and neurological deficit were excluded. All patients were investigated to rule out inflammatory and neoplastic conditions. Patients were listed for facet joint injection if they had at least one of the four positive discriminators from the Helbig and Lee scoring system.

Fifty-seven consecutive patients listed for facet joint injection were included in the study ; 51 were available for follow-up. Their pre-procedure Helbig and Lee scores were recorded. The site of injection was chosen according to clinical local tenderness and/or associated radiological changes. Injections were given in the theatre, in the prone position, after local anaesthetic infiltration, under image guidance. One ml of depomedrone (20 mg) and one ml of bupivacaine 0.5% were injected into each facet joint, after confirmation of correct needle placement with 0.2 ml of contrast dye.

All patients had out-patient physiotherapy following the procedure. They were seen again at 8 weeks and at 6 months. Patients' subjective assessment of the effect was recorded (complete relief, partial relief, no change, worse). This was correlated with their Helbig and Lee scores.

RESULTS

Fifty-one out of 57 patients were available for follow-up. Their average age was 58.5 years (range : 33 to 89) ; 58% were females. The pre-operative Helbig and Lee scores ranged from 10 to 100 (mean : 54.5). A total of 168 injections were given : one at L2-L3, 9 at L3-L4, 84 at L4-L5, and 74 at L5-S1 (average : 3.3 injections per person ; range : 1 to 6). No complications were reported.

At the first follow-up visit, after 8 weeks, 53% of the patients claimed relief (complete relief : 15 or 29% ; partial relief : 12 or 24%), no relief : 23 or 45%, worse : 1 or 2%. Surprisingly, at the second follow-up visit, after 6 months, 68% of the patients reported improvement (complete relief : 16 or 31% ; partial relief : 19 or 37%), no relief 16 or 31%.

The data were analysed using Stata version 8. Firstly, data were examined to look for a possible relationship between pre-procedure raw Helbig and Lee scores and eventual symptom relief. Test for these scores and symptoms at 8 weeks resulted in a chi-square value of 4.7 and a p-value of 0.99 : not significant. A similar test at 6 months resulted in a chi-square value of 16.4 and a p-value of 0.56 : again not significant. This suggested a poor correlation between patients' pre-procedure scores and their eventual relief. Subsequently, the data were analysed after amalgamating the Helbig and Lee scores in two groups (10-50 scores in one group and 60-100 scores in the other group). Again, a poor correlation was noted between patients' scores and their level of relief at 8 weeks (chi-square value 0.7 ; $p = 0.7$) and at 6 months (chi-square value 0.03 ; $p = 0.984$) (figs 1, 2). Finally, analysis was done after grouping the pain relief scores into 'no relief' and 'partial and complete relief. Again, no correlation was noted between patients' Helbig and Lee scores and symptom relief (at 8 weeks : chi-square value : 1.71 ; $p = 0.995$; at 6 months : chi-square value : 8.49 ; $p = 0.49$).

DISCUSSION

Facet joints, also known as "zygapophyseal joints" or "Z-joints", were first recognised as a potential source of pain by Goldwaith in 1911 (4).

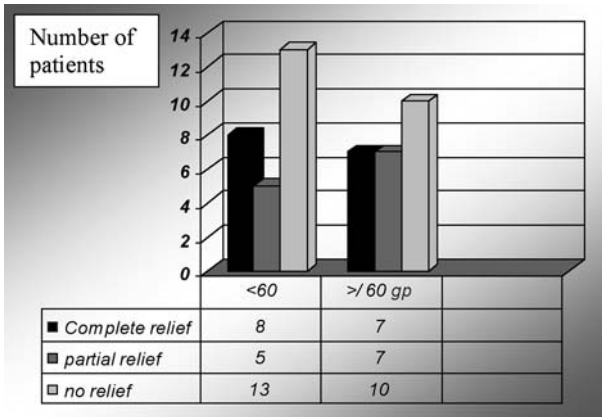


Fig. 1. — Poor correlation between patients' Helbig & Lee scores (group < 60, group \geq 60) and the response to injection (at 8 weeks).

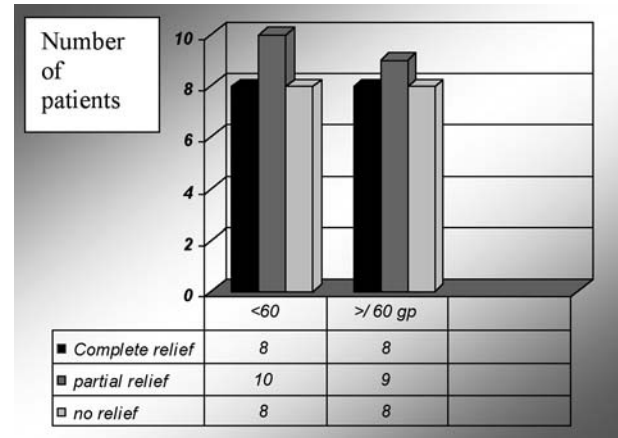


Fig. 2. — Poor correlation between patients' Helbig & Lee scores (group < 60, group \geq 60) and the response to injection (at 6 months).

In 1933, Ghormley (3) coined the term “Facet syndrome” and proposed clinical features of patients suffering from it (3). In 1963, Hirsch *et al* (6) reproduced pain in the back and thigh by injecting hypertonic saline into the facet joints. Mooney and Robertson (9), in 1976, were the first to claim a therapeutic benefit from local anaesthetic injections into the facet joints.

Since then various studies have reported success rates from 18 to 63% (2), but there have been very few controlled studies. A recent Cochrane review (10) could identify only two randomised controlled studies comparing facet joint injection with placebo. Both of these failed to demonstrate therapeutic efficacy of these injections (1, 8).

However, the role of facet joints in back pain is not denied. Based on the gold standard of double anaesthetic blocks (xylocaine should have a shorter effect than marcaine) (13), the prevalence of z-joint mediated chronic low back pain is estimated to be 15% in young adults and 40% in the older age group (12, 13). Unfortunately, the correlation of diagnostic facet blocks with a specific history and with physical examination is weak. Saal (11) found no significant predictive value of any specific clinical feature for “positive response to facet diagnostic block”, which confirms the findings of the authors.

As low back pain is not a well-specified entity, the problem lies in identifying the patient whose pain is mainly due to facet joint pathology. In our study, specific joints were selected for injection based on the site of local tenderness at clinical examination and associated radiological evidence of degeneration. Although this approach may not accurately identify patients with active facet joint disease, it is a conservative commonsense approach which gave reasonable results. In the current study, no relationship was found between patients' preoperative Helbig and Lee scores and their response to facet joint injections, which underscored the difficulty in identifying patients likely to benefit by simple scoring systems. A good number of patients improved after the injection, with more patients better at the second visit (68% at 6 months, versus 53% at 8 weeks). This could be due to the natural history of the disease or to the effect of physiotherapy. Our study was a pragmatic audit of current clinical practice and hence it was difficult to control for physiotherapy as a confounding factor. Nevertheless, reasonable therapeutic response rates in our study suggest that facet joint injections do have a role in the treatment of chronic low back pain as a part of a multipronged strategy. However, it is difficult to predict response to these injections based on the preoperative Helbig and Lee criteria used.

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