ORIGINAL ARTICLE

Prevalence of Facet Joint Pain in Chronic Low Back Pain in Postsurgical Patients by Controlled Comparative Local Anesthetic Blocks

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ABSTRACT. Manchikanti L, Manchukonda R, Pampati V, Damron KS, McManus CD. Prevalence of facet joint pain in chronic low back pain in postsurgical patients by controlled comparative local anesthetic blocks. Arch Phys Med Rehabil 2007;88: 449-55.

Objective: To evaluate the prevalence of facet joint pain in patients with chronic low back pain (CLBP) after surgical intervention(s).

Design: A prospective, nonrandomized, consecutive study.

Setting: An ambulatory interventional pain management setting.

Participants: The prevalence of facet joint pain was evaluated in patients with CLBP after various surgical intervention(s) referred to an interventional pain management practice. The sample was derived from 282 patients with persistent CLBP after various surgical intervention(s). Of these, 242 patients consented to undergo interventional techniques. A total of 117 consecutive patients with chronic, nonspecific low back pain, after lumbar surgical intervention(s) were evaluated with controlled, comparative local anesthetic blocks.

Interventions: Controlled, comparative local anesthetic blocks (1% lidocaine or 1% lidocaine followed by .25% bupivacaine) under fluoroscopic visualization using 0.5mL to block each facet joint nerve.

Main Outcome Measures: A positive response was defined as at least 80% reduction of pain with ability to perform previously painful movements. A positive response was considered to be pain relief from the lidocaine block lasting at least 1 hour or at least 2 hours or greater than duration of relief with lidocaine when bupivacaine was used. Controlled, comparative local anesthetic blocks were used to eliminate false-positive results. Valid information is only obtained by performing controlled blocks in the form of comparative local anesthetic blocks, in which, on 2 separate occasions, the same joint is anesthetized by using local anesthetics with different durations of action. If patients obtained appropriate response with both blocks, they were considered a positive. If they obtained appropriate response with lidocaine but not with bupivacaine, they were considered false-positive, whereas if the response was negative with lidocaine, they were considered negative.

Results: The prevalence of lumbar facet joint pain in patients with recurrent pain after various surgical intervention(s) was 16% (95% confidence interval, 9%−23%). The false-positive rate with a single block with lidocaine was 49%.

Conclusions: Facet joints are clinically important pain generators in a small but significant proportion of patients with recurrent CLBP after various surgical intervention(s).

Key Words: Facet joint; Laminectomy; Low back pain; Rehabilitation; Zygapophyseal joint.

ZYGAPOPHYSEAL (FACET) JOINTS have been implicated as the source of chronic pain in 15% to 45% of patients with chronic low back pain (CLBP).[1-9] These figures are based on responses to controlled diagnostic blocks of these joints, in accordance with the criteria established by the International Association for the Study of Pain (IASP).[10] However, the role of lumbar facet joints in CLBP after surgical intervention(s) has received very little attention with only a few publications[9,11-19] discussing these joints as the source of pain production. Even though axial low back pain (LBP) secondary to facet joint involvement after surgical intervention(s) is less common, it can be not only chronic but also as disabling as pain that is secondary to recurrent disk herniation, radiculopathy, or instability.

Postlumbar laminectomy syndrome or pain after operative procedures of the lumbar spine is observed in a significant proportion of patients.[12-20] Fritsch et al[15] reported that epidural fibrosis, recurrent disk herniation, instability, and facet joints were responsible for recurring symptomatology. It has been suggested that a specific etiology of back pain can be diagnosed in only about 15% of patients with certainty based on clinical examination alone.[21-26] Thus, it is even more difficult in postlumbar surgery syndrome to identify pain-generating structures.

The facet or zygapophyseal joints of the lumbar spine have been shown to be capable of causing pain in the low back with referred pain to the lower extremity in healthy volunteers.[27-32] They have been shown to be a source of pain in patients with CLBP by using diagnostic techniques of known reliability and validity.[1-11,27,33-36] Bogduk[26] postulated that for any structure to be deemed a cause of back pain, it should have a nerve supply; should be capable of causing pain similar to that seen clinically, ideally in healthy volunteers; should be susceptible to diseases or injuries that are known to be painful; and should have been shown to be a source of pain in patients by using diagnostic techniques of known reliability and validity. Bogduk[33] also postulated that diagnostic blockade of a structure with a nerve supply with the ability to generate pain can be performed to test the hypothesis that the target structure is a source of the patient's pain. In accordance with the postulates of Bogduk,[26,33] the lumbar facet joints are innervated, and they produce pain in healthy volunteers[27-32]; the relief of facet joint pain has been shown by using diagnostic techniques of known reliability and validity,[1-11,33-38] and relief of pain has

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been shown by using therapeutic techniques of known reliability and validity.[36,39-47]

Diagnostic blocks of facet or zygapophyseal joint can be performed by anesthetizing the joint by intra-articular injections of local anesthetic or the medial branches of the dorsal rami that innervate the target joint to test whether the joint is the source of pain. Valid information is only obtained by performing controlled blocks, either in the form of placebo injections of normal saline or comparative local anesthetic blocks, in which, on 2 separate occasions, the same joint is anesthetized by using local anesthetics with different durations of action. The rationale for using facet joint blocks for diagnosis is based on the fact that facet joints are capable of causing pain and they have a nerve supply. Furthermore, various patterns of referred pain described for facet joints in the lumbar spine are similar to other structures, such as disks; most maneuvers used in physical examination are likely to stress several structures simultaneously, especially the disks, muscles, and facet joints, thus failing to provide any reasonable diagnostic criteria. The evidence[10,21-26,33-36,48-52] thus far on physical examination and diagnosis has been controversial. Demographic features, pain characteristics, and other signs and symptoms may not correlate and are unreliable,[10,21-26,33-36,48-52] and medical imaging provides little useful information, with radiographic investigations, including magnetic resonance imaging (MRI), revealing only some conditions with certainty.[24-27,33-36,53-56] The specificity,[37,38] validity, and reliability[10,21-26,33-36,48-52,57-61] of controlled diagnostic blocks with 2 local anesthetics and placebo controlled blocks has been proven, and controlled diagnostic blocks are considered the only means of confirming the diagnosis of facet joint pain.[1-11,33-36]

It is a general assumption that prevalence of facet joint pain in postlumbar surgery syndrome is insignificant.[12-14] Thus, although there is a probability of low prevalence of facet joint pain after various surgical intervention(s), lack of knowledge of the prevalence may hinder the clinicians from making proper diagnosis and providing appropriate therapy.

This study was undertaken to evaluate the prevalence of facet joint pain in patients who have undergone various surgical intervention(s), with chronic, persistent LBP presenting to an interventional pain-management practice for diagnosis and treatment. The study sought to evaluate at least 100 patients with persistent pain after lumbar surgery undergoing diagnostic controlled comparative local anesthetic blocks as per the criteria of IASP.[10]

METHODS

The study was planned to evaluate at least 100 patients with persistent pain after lumbar surgical intervention(s) with suspected facet joint pain. Patients were managed by 1 physician in a nonuniversity, private practice setting in the United States, offering comprehensive, interventional pain-management services. Institutional review board approval was not needed.

Inclusion Criteria

Patients who underwent lumbar surgical intervention at least 1 year before evaluation were included. Other criteria included patients who were at least 18 years of age, had pain for at least 6 months after surgery, and had pain that was nonspecific rather than radicular in nature. Disk-related pain with radicular symptoms was excluded in all patients based on radiologic or neurologic testing, lack of neurologic deficit, and no radicular symptoms. Neurologic testing included objective findings with straight-leg raising, reflex suppression, motor weakness, and sensory dysfunction.

Evaluation of the patients included completion of a standard comprehensive pain-management questionnaire, history, physical examination, and evaluation of the results of all procedures and investigations. All patients had failed conservative management, which included physical therapy, exercise program, drug therapy, and bedrest. Workup included a comprehensive history, physical examination, and evaluation of the results of prior procedures and investigations. Examinations, evaluations of patients, and all procedures were performed by 1 physician.

Procedures

Informed consent was obtained from all patients. The study period lasted from January 2003 to July 2005.

Facet or zygapophyseal joint pain was investigated in all patients starting with diagnostic blocks by using 1% lidocaine. Patients with lidocaine-positive results were further studied by using .25% bupivacaine on a separate occasion, usually 3 to 4 weeks after the first injection. The blocks were performed on the ipsilateral side in patients with unilateral pain or bilaterally in patients with bilateral or axial pain. At least 2 medial branches with or without dorsal ramus were blocked, thus blocking a single joint. Target joints were identified by the pain pattern, local or paramedian tenderness over the area of the facet joints, and reproduction of pain with deep pressure. Blocks were performed in prone position with intermittent fluoroscopic visualization by using a 22-gauge, 8.9-cm (3.5-in) spinal needle at each of the indicated medial branches at L1 to L4 levels and L5 dorsal ramus. Intravenous access was established; the procedure was offered with or without light sedation with midazolam to all patients. Each facet joint nerve was infiltrated with 0.5mL of 1% lidocaine or .25% bupivacaine.

Each patient was positioned in the prone position with a pillow under the abdomen. The fluoroscope was adjusted straight anteroposterior from the skin entry point laterally by using anteroposterior (AP) imaging. For the blocks from L1 to L4 medial branches, the needle was advanced to reach the target location opposite the lateral margin of the superior articular process and slightly medial to this margin. Prior to the injection, the bevel opening was directed caudally to avoid spread of injectate to the intervertebral foramen. Appropriate care was taken to place the needle midway along the course of the nerve across the base of the superior articular process to avoid high placement on the superior margin of the transverse process on the proximal portion of the target nerve, which has been reported to be associated with an inordinate incidence of epidural or foraminal spread. The L5 dorsal ramus blocks were performed with AP view of L5-S1 segment with rotation of the fluoroscope approximately 10° to 15° oblique to view the junction of the sacral ala and the superior articular process of S1. Once a clear path to the target point for the L5 dorsal ramus was identified, a skin-insertion point was chosen. The needle was advanced directly down the beam to the target position. After the needle tip was confirmed to be in the proper location, the bevel opening was rotated medially to reduce inadvertent spread to the S1 posterior foramina or the L5 vertebral foramina.

A positive response was defined as at least 80% reduction of pain with ability to perform previously painful movements as assessed by using a verbal analog pain rating scale. After each block, the patient was examined and asked to perform previously painful movements. To be considered positive, pain relief from a block had to last at least 1 hour when lidocaine was used and at least 2 hours or greater than the duration of relief with lidocaine when bupivacaine was used. Any other response was considered as negative.

Table 1: Demographic Characteristics (N=117)

Characteristics	Values
Sex, % (n)	
Male	48 (56)
Female	52 (61)
Age (y)	
Range	22−85
Mean ± SD	52.7±15.8
Height (cm)	
Mean ± SD	171.4±9.6
Weight (kg)	
Mean ± SD	85.5±22.0
Pain distribution	
LBP, % (n)	
Bilateral	21 (24)
Left	47 (55)
Right	32 (38)
Leg(s) pain, % (n)	
Bilateral	17 (20)
Left	47 (55)
Right	21 (24)
Pain distribution, % (n)	
Back pain only	15 (18)
Leg pain only	0 (0)
Back worse than leg	51 (60)
Leg worse than back	3 (3)
Both equal	31 (36)
No. of postsurgery intervention(s), % (n)	
1	55 (64)
2	27 (32)
⩾3	18 (21)
Type(s) of surgery, % (n)*	
Lumbar laminectomy	61 (71)
Fusion with bone	20 (23)
Fusion with hardware	18 (21)
Microdiskectomy	8 (9)
Other surgeries (ie, disk prosthesis)	33 (39)

Abbreviation: SD, standard deviation.
*Total numbers may differ because of more than 1 surgery.

All patients were discharged 1 hour after completion of the diagnostic blocks. They were asked to note the time of the return of pain on a discharge instruction sheet. All patients were contacted within 2 to 24 hours after the block by a registered nurse, and their responses were recorded. All patients judged to have a positive response with lidocaine blocks underwent subsequent bupivacaine blocks. If the patient was determined not to have facet joint pain, he/she was offered other diagnostic or therapeutic intervention(s), including epidural injections or sacroiliac joint injections in the same sitting and/or provocative diskography in a different sitting.

Statistical Methods

Data were recorded on a Microsoft Access 2003 database.[a] The SPSS[b] statistical package was used to generate frequency tables. The prevalence and 95% confidence intervals (CIs) were calculated. Differences in proportions were tested using a chi-square test. The Fisher exact test was used whenever the expected value was less than 5. Results were considered statistically significant if the *P* value was less than .05.

RESULTS

A total of 282 patients with persistent CLBP after various surgical intervention(s) were evaluated. Of these, 242 patients consented to undergo interventional techniques. Of these, 123 patients met criteria for facet joint pain. Six patients refused to participate in the study. Of the remaining 119 patients with radicular or pain related to other causes, all of them underwent epidural or sacroiliac joint injections initially.

Demographic Characteristics

Fifty-two percent of patients were women with a mean age of 52.7±15.57 years, 21% with bilateral pain, and 85% with lower-extremity pain. A significant proportion (47%) had left-sided pain. Forty-five percent of the patients underwent more than 1 surgery, and 34% of patients underwent fusion either with bone graft or hardware (table 1).

Prevalence

Table 2 shows the results of diagnostic blocks evaluating facet joint pain in the lumbar spine. Lidocaine blocks were performed in each of the 117 patients, most of whom (n=113) received sedation. Of the 117 patients undergoing lumbar facet joint nerve blocks, 67 patients reported a definite response to initial lidocaine blocks. All the lidocaine-positive patients underwent bupivacaine blocks. Of the 67 patients who were positive for lidocaine injection, 19 were positive for a confirmatory block with bupivacaine.

Comparative controlled local anesthetic blocks provided a prevalence rate of facet joint pain in patients with CLBP in postlumbar surgery syndrome of 16% (95% CI, 9%−23%) in patients with suspected facet joint pain. The prevalence of facet joint pain in all patients undergoing interventional techniques was 8% (117 participating in study plus 119 with pain of other causes; N=236).

We evaluated the prevalence of facet joint pain based on the number of surgeries each patient had undergone. Table 3 shows the results with no significant difference between the patients undergoing 1 surgery, 2 surgeries, or 3 or more surgeries. The prevalence in patients undergoing 1 surgery was 14% (95% CI, 5%−23%); in patients undergoing 2 surgeries, it was 19% (95% CI, 5%−33%); and in patients undergoing 3 surgeries, it was 19% (95% CI, 2%−36%).

Table 4 shows results of prevalence of lumbar facet joint pain based on MRI or computed tomography (CT) findings, including whether or not the patients had received fusion with hardware or bone. No significant differences were noted based on the diagnosis of facet joint arthritis, spinal stenosis, disk protrusion, spondylosis, spondylolisthesis, or fusion. However, there were significant differences noted with the diagnosis of disk bulging, with 28% of patients testing positive for facet joint pain compared with 10% testing negative.

Table 2: Results of Lumbar Facet Joint Nerve Blocks (single block with lidocaine and double block with lidocaine and bupivacaine)

Blocks	Results		
Single (n)	Positive	Negative	Single total
Positive (n)	19	48	67
Negative (n)	0	50	50
Double total (n)	19	98	117
Prevalence (%)	16 (95% CI, 9−23)		
False-positive rate (%)	49 (95% CI, 39−59)		

Table 3: Results of Lumbar Facet Joint Nerve Blocks (single block with lidocaine and double block with lidocaine and bupivacaine) Based on Number of Surgeries

	Single Surgery (n=64)		Two Surgeries (n=32)		3 or More Surgeries (n=21)	
Blocks	Double		Double		Double	
Single	Positive	Negative	Positive	Negative	Positive	Negative
Positive (n)	9	27	6	13	4	8
Negative (n)	0	28	0	13	0	9
Prevalence (%)	14 (95% CI, 5−23)		19 (95% CI, 5−33)		19 (95% CI, 2−36)	
False-positive rate (%)	49 (95% CI, 36−63)		50 (95% CI, 30−70)		47 (95% CI, 23−71)	

False-Positive Rate

For purposes of calculating false-positive rates, all patients with no response to lidocaine were assumed to be true negatives, and all patients with a positive response to lidocaine and a negative response to bupivacaine were considered to be false positives. The resultant false-positive rate was 49% (95% CI, 39%−59%). The false-positive rate based on the number of surgeries was without any significant difference.

DISCUSSION

This prospective study of patients with nonspecific CLBP after various lumbar surgical intervention(s) showed that the prevalence was 16% (95% CI, 9%−23%) in patients suspected of facet joint pain and was 8% in the overall population undergoing interventional techniques. False-positive rates were 49% with a single block with lidocaine (95% CI, 39%−59%). There were no significant differences noted based on radiologic findings, number of surgical intervention(s), or fusion in the prevalence of facet joint pain after surgical intervention(s).

Facet joints have been shown to be a source of CLBP by means of diagnostic techniques of known reliability and validity.[1-10] The validity of diagnostic blocks has been established.[37,38,59-61] Facet joints can be anesthetized by medial branch blocks and by blockade of the dorsal ramus that innervate the target joints. Significant pain relief with the ability to perform maneuvers that were painful before facet joint nerve blocks is considered as the diagnostic criteria for facet joint pain. In addition, false-positive results may be present; hence, true-positive responses are determined by performing controlled blocks, either in the form of placebo injections of normal saline or comparative local anesthetic blocks on 2 separate occasions when the same joint is anesthetized by using local anesthetics with different durations of action. The medial branch blocks and comparative local anesthetic blocks have been proven to be valid in the diagnosis of facet joint pain.[48,49,52,62] The face validity of medial branch blocks has been established by injecting small volumes of local anesthetic onto the target points for these blocks under fluoroscopic visualization. Construct validity of facet joint blocks is important to eliminate placebo effect as the source of confounding results and secure true-positive results.[57,58] The hypothesis that testing a patient first with lidocaine and subsequently with bupivacaine provides a means of identifying the placebo response has been tested and proven.[57,58,62] Provocation response was shown to be unreliable in 1 study.[49] The false-negative rate of diagnostic facet joint blocks was shown to be 8% because of unrecognized intravascular injection of local anesthetic.[37] False-positive rates were evaluated in multiple investigations.[1-10,63] Reported false-positive rates varied from 17% to 47% in the lumbar spine. Furthermore, the influence of psychologic factors and sedation was also evaluated.[59-61] False-positive rates under the influence of intravenous midazolam was similar to intravenous placebo injection.[60,61] In addition, the validity of comparative local anesthetic blocks was determined not only by short-term relief with controlled diagnostic blocks and ability to perform movements that were painful before the blocks but also with the application of another appropriate reference standard (long-term follow-up) as described in the literature.[64]

If facet joints were determined to be causing radicular pain, the treatment focused at facet joints will not be helpful. Thus,

Table 4: Prevalence of Lumbar Facet Joint Pain Based on MRI and CT Findings

Finding	% (n) (N=117)	Prevalence, % (n/N)		*P*
		Positive	Negative	
Facet joint arthritis	17 (20)	10 (2/20)	18 (17/97)	.525
Spondylosis	14 (16)	25 (4/16)	15 (15/101)	.292
Spondylolisthesis	5 (6)	0 (0/0)	17 (19/111)	.587
Disk degeneration	32 (38)	18 (7/38)	15 (12/79)	.657
Disk bulging	34 (40)	28* (11/40)	10 (8/77)	.017
Disk protrusion	13 (15)	20 (3/15)	15 (15/102)	.263
Disk herniation	10 (12)	25 (3/12)	15 (16/105)	.410
Disk extrusion	1 (1)	0 (0/0)	16 (19/116)	1.000
Central spinal stenosis	21 (24)	25 (6/24)	14 (13/93)	.218
Foraminal stenosis	13 (15)	20 (3/15)	16 (16/102)	.455
Epidural fibrosis	8 (9)	29 (2/9)	16 (17/108)	.613
Fusion with hardware	18 (21)	19 (4/21)	16 (15/96)	.746
Fusion with bone	20 (23)	13 (3/23)	17 (16/94)	.642

NOTE. Total numbers may differ because of presentation of more than 1 problem.
*Indicates significant difference.

to arrive at appropriate prevalence, these patients have to be eliminated. Otherwise, they will be producing the false negative results.

Study Limitations

This study has several limitations. These include only 1 physician performed all of the interventions, various ages of patients were grouped together for inclusion, various surgical techniques had been performed on the patients and they were grouped together for comparison, patients with only 1 surgery were grouped with some who had up to 3 surgical interventions, investigation was not blinded, utilization of controlled comparative local anesthetic blocks instead of placebo blocks, the rationale for excluding patients with radicular pain and the selection bias resulting from this exclusion, and justification of high false-positive rates.

First, to maintain uniformity, the procedures were all performed by 1 physician. If multiple physicians were involved, then the variation in technique could be criticized. This will lead to speculations on a missed facet block the first time or a technical issue the second time, and variations in physician techniques will become an issue. Thus, we believed that to maintain face validity it was essential to use only 1 investigator.

Second, various ages of patients were grouped together for inclusion. If patients of different ages were not included in the study and they were instead divided into various age groups of at least 3 or 4, it would require at least 400 patients undergoing controlled diagnostic blocks to derive any meaningful data with a prevalence of 16%.

Third, various surgical techniques had been performed on the patients, and they were grouped together for comparison. However, were we to group patients separately for each type of surgery, that would further complicate the sampling because this would require 400 to 500 patients.

Fourth, patients with only 1 surgery were grouped with some who had up to 3 surgical interventions. Because only 55% of the patients in this study underwent 1 surgery, 27% underwent 2 surgeries, and 18% underwent 3 or more surgical interventions, sample size would be very difficult if we were to study each group separately. Although it may be feasible to study patients with 1 surgical intervention, it would not be feasible to study patients with multiple surgical interventions. However, the prevalence in this study was similar in all 3 groups without a statistically significant difference, which was 14% and 19%.

Fifth, the study may be criticized for its prospective nature and nonrandomization. A controlled, prospective, double-blind, randomized evaluation for diagnostic blocks is neither feasible nor recommended.

Sixth, this study may be criticized for using controlled diagnostic blocks with 2 different local anesthetics with different durations of action instead of placebo-controlled diagnostic blocks. Controlled comparative diagnostic blocks are used based on ethical considerations, ease of enrollment, and clinical practice in the United States. Reliability of controlled comparative local anesthetic blocks has been proven by multiple controlled trials.[33-35,52,57-61]

Seventh, this study may be criticized for excluding patients with radicular pain. However, this is in line with previous investigations.[1-9,11,33-35] It is generally assumed that the prevalence of facet joint pain in postlumbar surgery syndrome is insignificant.[12-14] With that assumption, if we included all the patients with radicular pain, not only would the patient be receiving unnecessary blocks, which is an ethical consideration and an expensive one, but also it would increase the negatives and false positives. There is no evidence in the literature to manage radicular pain secondary to disk herniation or pressure from facet joints to manage with interventions directed at managing pain originating from facet joints themselves rather than the pressure. One other argument on this issue may be made that patients may have radicular or diskogenic pain in conjunction with facet joint pain. However, a combined contribution of disk and zygapophyseal joint in CLBP has been shown to be 2%.[3] Thus, if a patient fails to respond to the interventions directed at the disk and the nerve root, one may consider diagnostic facet joint blocks to rule out the facet joints as contributors at a later date. This study showed that patients with disk bulging had 28% prevalence of facet joint pain compared with 16% of overall prevalence; thus, it may appear that facet joint pain is correlated with disk abnormalities. However, there were no significant differences compared with other conditions when disk protrusion and disk herniation were considered. Radicular pain was mostly considered in patients with disk protrusion, disk herniation, and spinal stenosis rather than a sole finding of disk bulging. Conversely, patients showing abnormalities of the facet joints had only 10% prevalence of facet joint pain, which was clinically insignificant from various other groups.

Finally, the false-positive rate of 49% may be criticized compared with the prevalence rate of 16%. This may also lead to the issues related to controlled comparative local anesthetic blocks. Some may believe that the failure of the bupivacaine block could be a missed facet block the second time, a technical issue, placebo effect of the first block, effect of a different anesthetic agent, or something else. First, blocks of facet joints can be performed to test the hypothesis that the target joint is a source of the patient's pain.[33] Second, facet joints can be anesthetized with intra-articular injections of local anesthetic or by anesthetizing the medial branches of the dorsal rami that innervate the target joint. Third, if pain is not relieved, the joint cannot be considered the source of pain. Thus, the true source may be another facet joint or some other structure. Fourth, 2 positive responses are determined by performing controlled blocks, either in the form of placebo injections of normal saline or comparative local anesthetic blocks on 2 separate occasions; then, the same joint is anesthetized by using local anesthetics with different durations of action. The value and validity of medial branch blocks and comparative local anesthetic blocks in the diagnosis of facet joint pain have been shown.[1-11,25,26,33-38,52,57-64] Fifth, medial branch blocks are considered accurate, easily performed, and reliable.[1-11,33-38,65,66] Sixth, false-positive response with a single block has been well established in diagnostic studies,[1-11,32-36,57,58,63,67] and the best response has been obtained in patients in whom the diagnosis was made by controlled diagnostic blocks by using either placebo or controlled comparative local anesthetics.[39,42,45,68] Thus, the false-positive rate of 49% is not unusual; false-positive rates of 63% have been reported in previous studies.[8] Further reasoning of a missed facet block is not a probability considering numerous blocks were performed by the physician and they were performed under fluoroscopic visualization. Thus, the explanation does include that the first block was a placebo effect. It also explains that using a different anesthetic with different duration of action also produces a different result; however, it is a real probability that there were other structures responsible for the patients' pain. Thus, based on the extensive literature, we are confident with regard to the methodology used in controlled comparative local anesthetic blocks resulting in false-positive results.

Although we considered that controlled comparative local anesthetic blocks are valid and reliable, further research may be

conducted with placebo controlled blocks by using 3 diagnostic blocks as has been done in the past. If it is feasible, it may be worthwhile to include the entire population of LBP with or without lower-extremity pain with postsurgery syndrome and evaluate prevalence of facet joint pain by performing diagnostic facet joint blocks, which may provide a true prevalence in postsurgery patients.

This study shows the clinical relevance of diagnostic facet joint nerve blocks in diagnosing facet joint pain in patients suffering with CLBP of postsurgery syndrome. Relief of pain has been shown by using therapeutic techniques of known reliability and validity in patients suffering facet joint pain.[36,39-47] However, the response of the patients with therapeutic interventions in patients suffering with facet joint pain of postsurgery syndrome has not been evaluated. Such an evaluation will add to understanding and also provide appropriate clinical relevance and change in the practice patterns of the clinicians.

CONCLUSIONS

This study evaluated patients with nonspecific CLBP after surgical intervention(s) of the lumbar spine. Painful lumbar facets were identified in 16% of the patients suspected of facet joint pain and in 8% of the patients undergoing interventional techniques with CLBP and/or lower-extremity pain. False-positive rates after single injections were in 49% of the patients.

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Suppliers

a. Microsoft Corp, One Microsoft Wy, Redmond, WA 98052.
b. Version 9.1; SPSS Inc, 233 S Wacker Dr, 11th Fl, Chicago, IL 60606.