

this study was to assess the efficacy of cooled RF neurotomy for SI joint pain.

Design: Retrospective case review.

Setting: Multidisciplinary pain medicine clinic at a tertiary care academic center.

Participants: 17 patients with chronic SI joint pain (3 bilateral for a total of 20 SI joints). Mean age was 69 years (SD 10 years). All had at least 50% pain relief with each of 2 separate fluoroscopically guided SI joint injections of local anesthetic (initial injection also contained corticosteroid).

Interventions: Patients who fulfilled inclusion criteria underwent RF denervation of the painful SI joint(s). Conventional RF was used to lesion the ipsilateral L4 medial branch nerve and L5 dorsal primary ramus in typical fashion. Cooled RF was used to lesion the lateral sacral branches of the S1, S2, and S3 posterior sacral neuroforamina. 8 lesions were created (3 at S1, 3 at S2, and 2 at S3). Cooled RF lesioning was performed at 60°C for 150 seconds at each site. For those patients with bilateral pain, right- and left-side procedures were separated by 1-2 months.

Main Outcome Measures: Amount (percentage) and duration (months) of pain relief. After the procedure, pain levels were assessed at least bimonthly until the study conclusion.

Results: There were no significant complications related to the procedure. 70% of the treated SI joints (14/20) had at least 50% pain relief from the procedure (average pain relief, 78%). Follow-up duration range, 3-13 months. Average duration of pain relief was 6 months, although 8/14 responders still had excellent pain relief at the conclusion of the study.

Conclusions: Cooled RF neurotomy appears to provide clinically significant, relatively long-duration relief of SI joint pain. Larger, randomized controlled studies are needed to clarify its clinical efficacy and utility.

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Fluoroscopically Guided Therapeutic Lumbar Zygapophysial Joint Injections May Reduce the Need for Radiofrequency Neurotomy in Chronic Low Back Pain Patients.

Fermin J. Santos, MD (The Orthopedic Clinic Association, Scottsdale, AZ); Christopher W. Huston, MD.

Disclosures: F. J. Santos, None.

Objective: Radiofrequency neurotomy (RFN) is currently the recommended interventional treatment for z-joint pain as opposed to corticosteroid injection. Medial branch RFN not only denervates the z-joint but also the multifidus muscle. The multifidus is targeted in core stabilization programs and considered important in rehabilitation of LBP. A therapeutic intervention that can target the z-joint but spare the multifidus muscle would be preferable. The Cochrane database review found inadequate evidence to support or refute the use of corticosteroid z-joint injection for LBP. The objective

of this pilot study was to determine whether therapeutic z-joint injections combined with a core stabilization home exercise program (HEP) can reduce the need for RFN.

Design: Observational study.

Setting: Interventional spine clinic.

Participants: Chronic LBP subjects that had 80% decrement pain with diagnostic z-joint blocks and passed the comparative block paradigm. 166 subjects underwent diagnostic z-joint blocks, 26 had an initial positive response but did not pass the comparative block paradigm. 37 subjects passed the comparative block paradigm and underwent therapeutic intra-articular z-joint injections.

Interventions: Therapeutic z-joint injection, physical therapy, HEP.

Main Outcome Measures: Visual analog scale (VAS), greater than 50% decrement on VAS, and narcotic use at 1-year after injection.

Results: 59.5% did not require further intervention, 59.5% had a VAS reduction of 2 points or greater, 56.7% had at least a 50% reduction in VAS, 86% reported cessation of narcotic medications, 73% continued participating in a HEP, and 55% reported aerobic exercise on a weekly basis.

Conclusions: Therapeutic z-joint injections combined with a core stabilization home exercise program may reduce the need for RFN. The pilot study supports the need for a prospective, randomized controlled trial.

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Obesity, Blood Pressure and Chronic Low Back Pain.

Andrew J. Haig, MD (University of Michigan, Ann Arbor, MI); Siera M. Goodnight, BS; Tareto J. Nasari; Derek W. Wood.

Disclosures: A. J. Haig, Rehabilitation Team Assessments, LLC, Ownership or partnership; The International Rehabilitation Forum, Nonremunerative positions of influence; The University of Michigan, Employment BS.

Objective: To determine if blood pressure or obesity correlated with the amount of pain experienced by chronic low back pain patients.

Design: Retrospective chart review.

Setting: University spine clinic.

Participants: Persons between the ages of 18 and 90, who presented with pain of over 3 months' duration to a university spine program between February 2009 and November 2009.

Interventions: Review of intake records for pain (numeric rating scale 0-10), blood pressure, and body mass index (BMI).

Main Outcome Measures: Relationship between pain level and blood pressure; pain and body mass index.

Results: Among 211 subjects the average pain level was 4.88 ± 2.60 (standard deviation), systolic blood pressure 123.52 ± 13.48 mmHg, diastolic blood pressure 73.47 ± 9.58

mmHg, and BMI was 29.71 ± 7.15 . The pain and BMI correlation approached significance ($r = .138$, $n = 211$, $P = .059$). When subjects were partitioned into 3 groups according to their pain rating (low: 0-3; medium: 4-6; high: 7-10), there was a statistically significant difference in BMI ($\alpha = .05$) for the pain rating groups ($F [2,184] 3.690$, $P = .027$) with a small effect size ($\eta^2 = .039$). Post hoc comparisons using Tukey HSD test indicated that the mean score for those low pain ratings (M 27.57, SD 5.66) was significantly different from those with high pain ratings (M 31.05, SD 7.15). No relationship was found between pain and blood pressure, even with correction for body mass index.

Conclusions: The data suggest that it is not correct to attribute hypertension to pain in chronic pain patients. Obese persons with chronic pain appear to hurt more than nonobese persons. Whether obesity increases pain or whether increased pain causes obesity is not established.

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Occipital and Supraorbital Nerve Stimulation for Refractory Cervicogenic Headache—A Comparative Study.

Linqiu Zhou, MD (Jefferson Medical College, Thomas Jefferson University, Wynnewood, PA); Matthew Abad; Avi Ashkenazi, MD; Zarinah R. Hud-Shakoor, DO.

Disclosures: L. Zhou, None.

Objective: To compare the efficacy of occipital/supraorbital nerve stimulation with that of conservative therapy in the treatment of refractory cervicogenic headache (CeH).

Design: A retrospective comparative study.

Setting: An academic private pain clinic.

Participants: CeH patients with a history of cervical decompression and fusion or cervical degenerative disk disease, who had failed conservative treatment.

Interventions: Patients received one of the following 2 treatments: (1) implantation of percutaneous occipital and supraorbital nerve stimulators using a minimally invasive technique (neurostimulation group), (2) pain medications, physical therapy and occipital nerve blocks (control group).

Main Outcome Measures: Total pain index (intensity, duration and frequency of headache), use of narcotic medications, and patient's satisfaction were assessed by an independent reviewer (MA). Patients were followed up for 1-4 years.

Results: Twenty patients (11 women, 9 men; age: 25-66 years) were included, with 10 patients in each group. Before treatment, there was no between-group difference in mean TPI. In the neurostimulation group, all patients reported on $\geq 50\%$ headache relief after treatment, with a significant decrease in mean TPI (36.9 versus 7.6, before and after treatment, respectively) ($P < .0001$). In the control group, all patients experienced mild pain relief after treatment (mean TPI: 37.6 versus 31.4, before and after treatment, respec-

tively). There was a statistically significant between-group difference in post-treatment TPI: (7.6 vs 31.4, in the stimulator and the control group, respectively) ($P < .0001$). In the stimulator group, 5 patients weaned off of narcotic medications and 5 decreased their use; 5 returned to normal work. Conversely, in the control group, all patients continued to use narcotic medications and none returned to work.

Conclusions: Occipital and supraorbital nerve stimulation resulted in significant pain relief in our study sample. This treatment was also associated with decreased use of pain medications and improved quality of life.

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Occupational Risk Factors for Low Back Pain in the United States Adult Population.

Wenchun Qu, MD, PhD (Mayo Clinic, Rochester, MN); Russell Gelfman, MD; Mark-Friedrich B. Hurdle, MD; Kevin Schmidt, MD; Chengwei Wang.

Disclosures: W. Qu, None.

Objective: Risk factors for low back pain have been widely proposed, most of which focus on biomechanical stress on the spine. This is a comprehensive assessment of all occupations as risk factors associated with low back pain in U.S.

Design: This population-based complex survey study uses the National Health Interview Survey data collected during the period from 2004 to 2008 that randomly sampled non-institutionalized adults of the United States, applying weights necessary to make accurate population prevalence estimates.

Setting: Noninstitutionalized population of the United States.

Participants: A nationally representative sample of 22,635 subjects 18 years of age or older were included in the study.

Interventions: Not applicable.

Main Outcome Measures: Self-reported low back pain that spread to leg or areas below the knee in the past 3 months; occupation categories were based on U.S. census bureau coding of Standard Occupation Classification.

Results: A total of 9762 participants completed the question of both occupation and low back pain. Low back pain was reported in 5062 participants, same pain denied in 4648. Based on weighted data, certain occupations are significantly associated with LBP. After controlling for age, gender, and race, compared with a reference group of respondents with computer and mathematical occupations, participants working in installation, maintenance and repair occupations were 3.0 times (95% CI, 1.7-5.6) more likely to develop LBRP, while the likelihood was 2.3 times higher (95% CI, 1.3-4.2) in protective service, 2.3 times higher (95% CI, 1.3-4.0) in transportation and material moving, 2.2 times higher (95% CI, 1.2-3.8) in construction and extraction. The low risk occupations include life, physical, and social science occupations, community and social services, legal occupations and architecture and engineering occupations.

Conclusions: The findings of this study provide impor-