ABSTRACTS

AAPM Annual Meeting Abstracts

100 Clinical

“Painless” Complex Regional Pain Syndrome, Type I: A Case Report

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Introduction and Statement of the Problem: Complex Regional Pain Syndrome, Type I (CRPS-I) is a clinical diagnosis usually associated with burning pain, hyperpathia, and allodynia, and often related to trauma or tissue insult that can be distant or seemingly unrelated to the symptomatic area. It is unusual for a patient to present with the signs and symptoms of CRPS-I except for pain.

Materials and Methods: A patient was referred for the condition of painless swollen left wrist, hand, and fingers of 6 months’ duration. Chief complaints were swelling of the fingers and skin tightness of her left hand. She reported rapid left fingernail growth, and the skin of her left hand was shiny and often changed colors within the course of a day (photos 1, 2). Onset of symptoms closely followed two falls onto her left arm and shoulder. Initial laboratory and radiographic evaluation was negative (radiograph 1). Subsequent radiographs after 3 months revealed significant generalized osteoporosis, a lacy trabecular pattern of the proximal phalanges, and resorption of the medial aspects of the distal ends of both the proximal and middle phalanges (radiograph 2). Three-phase bone scanning revealed increased asymmetric flow and increased periarticular uptake in the wrist and hand (scan 1).

Results: The clinical picture was consistent with CRPS-I [1]. A comprehensive, multidisciplinary treatment plan was prescribed and her symptoms were resolved [2].

Conclusions: The lack of pain as a presenting symptom made this case an interesting diagnostic and therapeutic challenge [3]. Very few cases of painless CRPS-I have been reported, and the incidence and prevalence is unknown. It is not uncommon for patients with CRPS-I to have prolonged and refractory courses, incurring chronic disabilities related to pain. We remind clinicians to remain vigilant for painless CRPS-I because the same constellation of symptoms and signs may also present without pain.

References

101 Clinical

Memantine, a Treatment for Migraine: A Prospective Open-Label Trial

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We evaluated the use of a new N-methyl-D-aspartate (NMDA) antagonist, Memantine (Namenda®), in 18 consecutive patients (4 males, 14 females) with migraine (age 36–67). All were refractory to beta-blockers, calcium channel blockers, opiates, ergot alkaloids, naratriptan, gabapentin, and zolmitriptan, and two had been refractory to tiagabine and carbamazepine. A central sensitization has been advocated to explain chronic daily congenital dislocation of the hip (CDH) due to sustained peripheral sensitization of allogenic structures responsible for sustained trigeminovascular system activation. They involve NMDA receptor activation and nitric oxide production and hypersensitivity and increased and maintained production of sensory neuropeptides. Memantine is FDA approved and has been demonstrated to be safe and effective in the symptomatic treatment of Alzheimer’s disease. NMDA receptors appear to be a key target of memantine at therapeutic concentrations. Memantine is an uncompetitive (channel blocking) NMDA receptor antagonist [1]. Patients were started on 5 mg of memantine daily for 1 week,
then 5 mg bid for 1 week, then 10 mg in the am and 5 mg in the pm for 1 week then 10 mg bid. Patient interview, examination, and the McGill short-form pain questionnaire was used to grade responses. Responses were characterized as follows: excellent (greater than 70% reduction in headache), good (50–70% improvement), fair (20–50% improvement), and poor (less than 20% improvement). The following results were obtained: 11 excellent, 4 good, 2 fair, and 1 poor. Two patients had a moderate adverse event (one had dizziness, and the second had mild depression), though they had an excellent response. Treatment for only one patient was discontinued before the 10 mg bid dose was attained. Memantine is a most promising medication in the treatment of migraine. The 18 cases reflect a need for further investigation of memantine in the form of double-blind placebo-controlled studies.

Reference

102 Clinical
An Open-Label Trial of Tiagabine in Patients with Primary Fibromyalgia Syndrome
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Introduction: We evaluated the use of Tiagabine (Gabitril®), an anticonvulsant, in patients with Primary Fibromyalgia Syndrome (PFS). PFS is a chronic pain condition characterized by a diffuse pain pattern over the entire body. Tiagabine (TGB) increases synaptic gamma-aminobutyric acid (GABA) availability by binding reversibly and saturably to recognition sites associated with GABA transporter protein in neuronal and glial membranes [1].

Methods: Consecutive patients with PFS who were nonresponders to opiates, nonsteroidal anti-inflammatory drugs (NSAIDs), tricyclic antidepressants, and gabapentin were enrolled. TGB therapy was initiated at 4 mg qhs as add-on therapy to the patient’s current medication regimen. TGB was increased every 3–5 days by 4 mg to 8 mg qhs to a maximum of 12 mg/day. The following outcome measures were evaluated: McGill Short-Form Pain Questionnaire, numeric pain score, patient and physician subjective global response, examination for degree of tenderness. Patients were followed monthly. Adverse events were noted. Results: A total of 11 patients (10 women, 1 man) with PFS were given TGB. Mean age was 46 years (range: 31–59). At final outcome measurement, 64% of the patients had received TGB for 12 months (range: 1–12 months) and mean Numeric Pain score decreased from 8.3 (range: 7–10) to 3.7 (range: 0–10) and mean McGill decreased from 38.4 (range: 32–44) to 17.3 (range: 0–30). Patient responses were as follows: excellent = 6 (55%); good = 1 (9 %); fair = 3 (27%); and poor = 1 (9 %). Adverse events were reported by one patient (nausea and sedation). Two patients discontinued treatment; one patient for poor response and one patient due to adverse events.

Conclusions: Overall, TGB was well-tolerated and demonstrated an effective response to this very-difficult-to-treat condition. The eleven cases reflect a need for further investigation of TGB in the form of double-blind placebo-controlled studies.

Reference

103 Clinical
Weaning Off High Doses of Opioids for Analgesia without Side Effects with Short-Term Neuraxial Anesthesia and Opioid Rotation to Methadone
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Introduction: Weaning of a patient being treated for pain from opioids and the detoxification of a patient being treated for drug addiction are considered distinct activities under the Controlled Substances Act (CSA) of 1970 and its implementing regulations. We present an interesting case where we were able to successfully wean a patient off greater than 10,000 oral morphine equivalents per day given for analgesia to fewer than 200 mg of oral morphine equivalents per day.

Methods: A 48-year-old female with a history of metastatic leiomyosarcoms to the lumbosacral spine was admitted for removal of the tumor. Her medications for intractable pain upon transfer were morphine 85 mg/hour, hydromorphone 10 mg/hour, vioxx 25 mg per day, ellaville 150 mg per day and fentanyl 300 µg per hour patches. Intraoperatively a tunneled epidural was placed and intravenous sufentanil was used. Postopera-
Abstract

clinically the patient was given an epidural infusion of 50 μg of hydromorphone per milliliter and bupivacaine 0.031% at 5 mL per hour for 2 days and hydromorphone intravenously at 15 mg per hour with available prn doses and methadone elixir hydromorphone was titrated down. The patient was discharged on the sixth postoperative day with methadone elixir 40 mg po tid and actiq lozenges 200 mg prn, vioxx 25 mg per day and elavil 40 mg q hs with good pain control and no withdrawal symptoms throughout.

Discussion: There is little information on the weaning process for patients prescribed very high doses of opioids >1,000 mg of oral morphine equivalents for analgesia. There are no previous reports of weaning processes for patients prescribed >10,000 mg of morphine equivalents for analgesia.

Reference


Clinical

Efficacy of Topical Lidocaine 5% Patch in Musculoskeletal and Neurological Pain—A Retrospective Case Series

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The Lidoderm patch, which consists of 5% topical lidocaine, is FDA approved for and has been used with success in patients with neuropathic pain associated with postherpetic neuralgia. The patch is formulated to deliver lidocaine to the peripheral sites of application with minimal systemic levels, making it ideal for localized pain, while reducing risk of systemic adverse events or drug–drug interactions. Randomized controlled clinical trials have shown that patients with postherpetic neuralgia report a significant decrease in pain intensity and allodynia when using the lidocaine patch.

Because of its demonstrated efficacy with intense postherpetic neuralgia pain, we have used it for multiple musculoskeletal and neurological conditions as symptomatic treatment for localized pain relief. In our practice, we have found the patch to be useful for back and neck pain, tendonitis and bursitis, as well as entrapment neuropathies, such as carpal tunnel syndrome, cubital tunnel syndrome, and meralgia paresthetica. As the patch can be cut to any size, it is remarkably versatile and may be applied to virtually any area of the body, provided the skin is intact.

We conducted a retrospective, single-center study of 14 patients with pain secondary to entrapment neuropathy, tendonitis, or bursitis. Of the 14 patients, 12 were female, and the average age was 46 with ages ranging from 25 to 81 years. Eighty-two percent of patients reported significant improvement over baseline symptoms, the average improvement being 44%. Even those patients who were previously on opioid analgesics such as Oxycodone and Propoxyphene reported a significant improvement in their symptoms after the addition of the Lidoderm patch, 65% on average. These results suggest that Lidoderm is an effective treatment of the pain associated with entrapment neuropathies, tendonitis, and bursitis. It potentially decreases the need for oral medications and injections. Further studies are warranted.

References

2 Galer BS. The lidocaine patch 5% effectively treats all neuropathic pain qualities: Results of a randomized, double-blind, vehicle-controlled, 3-week efficacy study with use of the neuropathic pain scale. Clin J Pain 2002;18(5):297–301.

Peripheral Nerve Stimulation for Postsurgical Facial Neuralgias

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We report three cases of refractory chronic postsurgical trigeminal neuropathic pain that were successfully treated with peripheral nerve stimulation using percutaneous leads. One patient had supraorbital neuralgia and two patients had infraorbital neuralgia. Two of the patients developed the pain following multiple sinus...
surgeries and one following extensive facial reconstruction secondary to basal cell carcinoma. All patients responded with short-term pain relief to blocks of the respective peripheral branches of the trigeminal nerve (supraorbital and infraorbital nerve blocks). However, they failed other interventions including conservative medical management, acupuncture, and radiofrequency ablation. All patients had successful extended peripheral nerve stimulation trials and subsequently underwent permanent implantation with percutaneous leads placed in proximity of the supraorbital or infraorbital nerve. Follow-up over 2 months after implantation revealed significant decreases in visual analog scale pain scores and drastic improvement in functional capacity in all three patients. In this report, we describe the technique and its advantages.

References

ISPR: A Web-Based Implantable Systems Performance Registry
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Introduction: The Implantable Systems Performance Registry (ISPR) is an ongoing, prospective, multicenter postmarket surveillance registry developed as a follow-up to a fax-based registry, the National Outcomes Registry for Low Back Pain [1,2]. ISPR is designed to monitor U.S. Medtronic infusion and neurostimulation systems. The objectives of ISPR include ongoing product evaluation with the goal of improving quality and reliability; longitudinal analyses evaluating implant and practice techniques; and patient and device outcomes tracking. The publication and reporting strategy for ISPR is overseen by a multispecialty advisory board.

Methods: ISPR centers follow standard clinical practice and a common registry protocol. ISPR collects registry data through a secure Web-based system, which enables electronic data capture (EDC) from each center. Information registered with the FDA-required Device Registration System (DRS) is automatically loaded into ISPR and electronic action items are generated. These alerts prompt the center to submit electronic data under various categories including enrolling a patient, enrolling a device, and providing a patient status update at 6-month intervals. The center reports events such as those requiring surgical intervention, patient death, and lost to follow-up. FDA-required Medical Device Reporting (MDR) is completed through an automatic notification process for qualifying events. The prepopulation of ISPR with previously entered information and automatic notification processes are key design advantages.

Results: Within the first 8 months of operation, ten centers actively contributed data for 509 enrolled patients with implantable systems. The intent of this presentation is to describe the methodology and present preliminary results.

Conclusions: This prospective clinical registry collects comprehensive information and long-term outcomes related to system performance. We will utilize data to improve products and guide development toward the goal of better patient outcomes. This registry will serve as a foundation and electronic platform for future outcome registry projects.

References

Funding: Medtronic, Inc.

Treatment of Refractory Low Back Pain with Botulinum Toxin A: A Prospective 14-Month Study
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A previous short-term, randomized, double-blind study suggested efficacy of botulinum toxin A (BoNT-A) in chronic low back pain [1]. We have prospectively inves-
tigated the effect of BoNT-A on chronic, refractory low back pain (cRLBP) of 75 adults. The cohort’s mean age was 46 years (range 19–72). The patients received BoNT-A (100 u/CC) into paraspinal muscles at baseline and when the pain recurred, usually at 4, 8, and 12 months. BoNT-A was administered into three to five paraspinal levels on each side (50 units/site), as close as possible to the tender points. The total dose per session varied from 200 to 450 units (mean 285) depending on the pain extension and laterality. The pain characteristics and patient’s functional limitations were recorded via visual analog scale (VAS), Oswestry Low Back Pain Questionnaire (OPQ) and Pain Impact Questionnaire (PIQ), at baseline, 3 weeks, 2, 4, 6, 8, 10, 12, and 14 months. They also had a neurological examination and recorded inquiry of side effects at these intervals. Patients did not change their physical therapy program or pain medications during the period of the study. A significant response to pain and significant functional improvement were noted in 56 and 54% of the patients at 3 weeks and 2 months after first treatment (P < 0.05). There was no difference between responders and non-responders as to age, pain intensity, duration, laterality, and history of previous surgery. Responders continued to respond (90%) to subsequent treatments. Two patients had a transient flu reaction and one patient experienced 60 seconds of acute root pain after injection. Conclusion: A subset of patients with cRLBP respond well to BoNT-A treatment of paraspinal muscles. Initial responsiveness predicts later responsiveness. Side effects are transient and uncommon.

Reference

Funding: Allergan Inc.
Clinical

Efficacy of Sciatic Nerve Block in Relieving Pain Following Achilles Tendon Repair: A Case Report

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Setting: VA Hospital Pain Clinic.
Patient: Fifty-year-old male status post Achilles tendon debridement and repair.
Case Description: The patient sustained an Achilles tendon partial tear while on active duty. Conservative measures to allow the tendon to heal, including physical therapy, a cam walker, heel lifts, and nonsteroidal anti-inflammatory drugs (NSAIDs) failed. The patient’s pain progressed over the next year, when he opted for surgical repair. After surgical debridement and repair, the patient was in a cast for 6 weeks. Aggressive physical therapy was prescribed; however, he was unable to fully participate because of pain (VAS 8/10), and made no significant progress.

Intervention: Using a 4-inch stimuplex needle and a nerve stimulator, area of sciatic nerve was identified at the infragluteal area. A total of 30 mL mepivacaine 1.5% and bupivacaine 0.5% with epi 1 : 200,000 was injected in incremental doses of 3 mL each after ascertaining negative aspiration for blood.

Assessment/Results: The patient’s pain was significantly reduced following this procedure (VAS 1/10), and he was able to fully participate in physical therapy. While the therapy was limited initially by paralysis following the procedure, his range of motion and functional ability improved dramatically.

Discussion: The sciatic nerve block was used to reduce the patient’s pain and eliminated the patient’s apprehension regarding the use of his right foot.

Conclusion: Sciatic nerve block produced excellent pain relief and allowed this patient to progress through his physical therapy with confidence in his surgically repaired tendon. Further studies are warranted to evaluate the efficacy of sciatic nerve block in aggressive range of motion therapy to advance the functional capacity in patients following Achilles tendon repair.

References
An Iontophoretic Fentanyl HCl Patient-Controlled Transdermal System (PCTS) Versus Intravenous Patient-Controlled Morphine for the Treatment of Acute Postoperative Pain after General Surgery

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Introduction: A noninvasive, preprogrammed, credit card-sized, iontophoretic, fentanyl HCl patient-controlled transdermal system (PCTS) is in development for the treatment of acute postoperative pain. In this setting, administration of morphine via intravenous patient-controlled analgesia (IV PCA) devices is common. A large (N = 636), randomized, multicenter study, which included a variety of surgery types, found the two approaches to be therapeutically equivalent. This subanalysis of that study compared their safety and efficacy in the subset of patients who had undergone general surgery.

Methods: Adult patients were titrated to comfort with opioids after major surgery and randomized 1:1 to the fentanyl PCTS or IV PCA morphine. The subset of general surgery patients contained 53 patients in the PCTS group and 58 patients in the morphine IV PCA group. The fentanyl PCTS delivered 40 mg fentanyl, up to 6 doses/hour. IV PCA delivered 1 mg morphine, up to 10 mg/hour. Pain intensity scores, measured by the visual analog scale (VAS), were recorded before randomization and thereafter for 72 hours. The primary efficacy end point was the proportion of patients rating their method of pain control as excellent or good (versus fair or poor) during the first 24 hours (patient global assessment, PGA).

Results: PGA was comparable between groups, with 44/53 (83.0%) patients receiving the fentanyl PCTS rating their pain control method as excellent or good, compared with 46/58 (79.3%) receiving morphine IV PCA (difference = 3.7%; 95% CI, –10.8%, 18.2%; P = 0.618). Pain intensity scores at 24 hours were 21.5 for PCTS and 21.6 for IV PCA (P = 0.994); between-group scores were similar at all measured time points. The most frequent treatment-related adverse events in both groups were nausea, pruritus, and vomiting.

Conclusions: In patients who had undergone general surgery, the fentanyl HCl PCTS was comparable in efficacy to a standard regimen of morphine IV PCA for postoperative pain control.

References

Funding: Johnson & Johnson Pharmaceutical Research and Development.


Clinical

Canadian Pain Study II: Profile of Chronic Noncancer Pain in Canada, 2004

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Introduction: In a 2001 survey, Morley-Forster et al. (2003) showed that general practitioners who prescribe analgesics >20 times per month see an average of 45 patients/month (range 4–200) with moderate-to-severe chronic pain (38 suffering chronic noncancer pain (CNCP)) [1]. The objective of the current study was to re-evaluate this prevalence in primary care practice, and to compare to the 2001 data.

Methods: To assess the current profile of Canadian patients with CNCP, an in-depth telephone survey was conducted, interviewing a nationally representative targeted sample of 100 family physicians, all writing >20 analgesic prescriptions/week for CNCP. Chronic pain was defined as pain of >6 month’s duration.

Results: Of all patients seen for chronic pain, the physicians surveyed estimated that 85% had CNCP and 15% suffered from cancer pain, versus 83% and 17%, respectively, in 2001. Of CNCP patients, 67% have moderate-to-severe pain levels; this is unchanged from 2001 (65%). Pain causation is attributed primarily to arthritis (31%), lower back/spinal conditions (21%), injury/postoperative state (13%), migraine/headache and neuropathic/neurological disease (both 11%). In 19% of CNCP patients, no etiology is obvious. Patients complain to physicians primarily of back pain (95% vs 81% in 2001; \(P = 0.05\)), knee pain (49% vs 39%; \(P = 0.17\)), neck pain (37% vs 43%; \(P = 0.44\)), and head pain/headache (36% vs 46%; \(P = 0.2\)). On average, physicians surveyed see 58 patients/month for moderate-to-severe CNCP (range 5–300), and write an average of 57 analgesic prescriptions/month; an average of 16% of the chronic pain patients were new to the physician’s practice. Patients with moderate-to-severe CNCP visit their family physician’s office a median of 10 times per year, primarily because of pain.

Conclusions: More than two-thirds of CNCP patients seen by family physicians have moderate-to-severe pain. Back pain predominates and is increased in frequency over 2001; pain is responsible for frequent visits to the family physician’s office.

Reference


Funding: Janssen-Ortho Inc, Canada.

Clinical

Efficacy and Safety of Kadian® in the Treatment of Neuropathic Pain

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Introduction: Pain due to lesions of the peripheral and/or central nervous system is heterogeneous in etiology and clinical presentation [1]. This study evaluated the effectiveness of the Kadian formulation of sustained-release morphine sulfate in treating neuropathic pain among patients with inadequate treatment outcome (pain rating of ≥4 on a scale of 0–10) on other pain medications, mostly opioids.

Methods: The KRONUS-MSP (Kadian: Response of Nonmalignant, Undertreated Subjects with Moderate/Severe Pain) trial was a prospective study yielding a large (\(N = 1,428\)) database of patients treating chronic nonmalignant pain with Kadian. Based on baseline primary diagnosis, patients were classified into two pain groups—presumptive neuropathic pain (PNP) or all other pain (AOP). Efficacy outcomes included pain intensity (0–10 scale), sleep quality (0–10 scale), global patient and physician therapy assessments (−4 to +4 scale), and quality of life (QoL; SF-36v2(tm) data [2]). Changes from baseline to week 4 were evaluated.

Results: Data were available for 1138 intent-to-treat patients, 498 with PNP. There were no significant dif-
ferences in demographics or efficacy outcomes between PNP and AOP groups. Among patients with PNP, the decrease from baseline to week 4 in pain scores was from 7.6 to 5.1; sleep scores were reduced from 6.3 to 4.3. Patient global assessment increased from −1.3 at baseline to +1.2 at week 4; physician global assessment scores increased from −1.4 to +1.4. Improved QoL was demonstrated by increases in the Physical Composite Score (29.0 to 32.3) and Mental Composite Score (33.3 to 38.7) on the SF-36v2 ($P < 0.001$ for all). Adverse events were reported by 28% (320/1138) of patients in both groups, most frequently constipation (12%) and nausea (7%). The tolerability profile was similar in both groups.

Conclusion: Results indicate that Kadian is as efficacious and well tolerated for treating neuropathic pain as it is for other pain types.

References

Funding: Alpharma US Pharmaceuticals Branded Products Division.

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Septic Facet Joint Arthritis after a Corticosteroid Facet Injection

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Introduction: Infections following spinal injections are infrequently reported complications. We report the occurrence of a septic facet joint after a lumbar corticosteroid facet injection.

Case Report: A 53-year-old female with recurrent urinary tract infections (UTI) was referred for a facet injection. Sixteen days prior, the patient underwent fluoroscopically guided bilateral L4-L5 facet injections. On the right, an intra-articular injection was performed (triamcinolone 40 mg). On the left, the intra-articular space could not be entered and a periarticular injection was performed (triamcinolone 50 mg). The patient had 3 days of reduced pain but then developed left-sided low back pain (LBP). She had two medical evaluations and was referred to our pain clinic for repeat facet injections. Upon presentation, she reported chills, diaphoresis, and severe left-sided LBP. On examination, she was afebrile, the left lumbar region was tender, and there were no neurological deficits. A magnetic resonance image (MRI) demonstrated an 8-mm left L2–L3 facet joint abscess with extension to the left paraspinous musculature and epidural space. The patient was hospitalized and a urine culture grew *Escherichia coli*. Blood cultures were negative. The patient underwent a left L2 hemilaminectomy, resection of the left L2–L3 facet joint, and drainage of the abscess. Pathological examination revealed an acute abscess but culture of abscess material remains negative to date. She is receiving broad spectrum antibiotics and further follow-up is underway.

Discussion: This is the fifth reported infectious complication after a facet injection. The risk factor for this patient included recurrent UTIs. In the previous cases [1–4], worsening LBP was the presenting symptom. The time from injection to symptom onset ranged from 2 to 35 days but the diagnosis was established an average of 14 days after symptoms developed. Following facet injections, an infectious complication should remain paramount in the differential diagnosis of worsening back pain.

References

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Efficacy of Comprehensive Pain Management Approach to Treating Chronic Knee Pain

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There is minimal research on the characteristics of patients with chronic knee pain or on the efficacy of comprehensive rehabilitative interventions for treating this population. These patients have often failed con-
Abstract

Conventional therapies including medications, physical therapies, corticosteroid injections, and surgical procedures. The present study examined 15 patients with chronic knee pain treated at the Mayo Clinic Pain Rehabilitation Center between 1998 and 2003. The mean patient age was 50 (SD = 17, range 18–76). Thirteen patients were female and two were male. They averaged 14 years of education (SD = 2.9) and 2.5 years of pain (SD = 0.3). All 15 patients completed the entire 3-week course. Diagnoses related to the development of chronic knee pain include knee arthroplasty, arthritis, trauma, and infections. All patients completed pre- and post-treatment assessments including the Health Status Questionnaire (HSQ), Multidimensional Pain Inventory (MPI), Center for Epidemiological Studies-Depression (CES-D), and the Coping Strategies Questionnaire (CSQ) [1–3]. Pretreatment questionnaire results were significant for major depression in 53% (N = 8) of patients with a CES-D ≥ 27. After completing rehabilitation, paired t-tests revealed significant decreases in pain severity/suffering (P < 0.05), depression (P < 0.05), catastrophizing (P < 0.01), and improved physical functioning (P < 0.05). This patient population, which has not often been described in the medical literature, has a significant level of depression and debilitation warranting future research. Furthermore, these findings suggest that patients with severe, chronic knee pain can significantly improve physical and emotional functioning in a pain rehabilitation program that incorporates multimodality therapies.

References

Clinical

Interscalene Brachial Plexus Block in a Patient with Adhesive Capsulitis Following Shoulder Hemiarthroplasty: A Case Report

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Setting: Outpatient Veteran's Administration pain clinic.

Patient: Fifty-five-year-old right-handed male that underwent left shoulder hemiarthroplasty secondary to proximal humeral head fracture.

Case Description: This patient presented to the pain clinic with persistent left shoulder pain and limited range of motion (ROM) following shoulder hemiarthroplasty 6 months prior to visit. At that time patient deferred surgical intervention and opted to maximize conservative care. Interscalene brachial plexus block was performed on two occasions. Both blockades preceded aggressive physical therapy that included glenohumeral mobilizations, prolonged passive stretching, and scapular mobilizations. Increased passive ROM was demonstrated following first blockade in forward flexion (107/70) and abduction (107/70) and this 107 degrees was maintained following the second block. Patient did report more pain with movement after second block compared with the first.

Assessment/Results: Adhesive capsulitis and pain following shoulder hemiarthroplasty are known complications that can result in functional impairment. Previous studies have demonstrated that patients with adhesive capsulitis have benefited from interscalene brachial plexus blockade with immediate aggressive physical therapy to increase ROM. This is the first report known to the authors of the use of interscalene brachial plexus blockade prior to physical therapy to increase ROM for patients that have developed adhesive capsulitis following shoulder hemiarthroplasty.

Discussion: In this patient, significant improvement in ROM was reported after blockade. This may be an effective method to increase ROM in patients with adhesive capsulitis following shoulder hemiarthroplasty. Further studies are indicated to confirm its efficacy in these patients.

References
Clinical

Hospitalizations, Undesirable Behavior, and Outcomes in Persons on Narcotics

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Introduction: Opioid trials to treat benign chronic pain are controversial, but the incidence and correlation of hospitalizations and abnormal behaviors is not defined.

Purpose: This retrospective chart review catalogues hospital contacts and abnormal behaviors during opioid treatment.

Methods and Materials: The charts of 105 adults (63 females, 43 males; 57 white, 43 black, 7 Latin; average age 50.8 years, duration of pain 7.1 years, initial VNS 7.38), referred to treat chronic pain at an urban county hospital between May 2002 and August 2003, were reviewed for specific behaviors.

Results: Forty-one patients were followed long term, 14 were discharged, 4 died, and 50 did not follow up. Twenty-six patients had 54 emergency room visits (22) or hospitalizations (32: 16 surgeries, 11 medical, and 5 psych admissions). Thirteen patients had multiple encounters. Aberrant behaviors included 11 positive urine tox screens, 8 patients’ obtaining medication from other sources, and 12 patients’ escalating doses. Two patients attempted unsuccessful suicide, four patients died, and eight MVAs occurred. Only eight (rash, pain meds, anxiety and pain, nausea, withdrawal, belly pain, constipation, and diverticulitis) of 53 hospital encounters are related to narcotics (P = 0.0001, z-test). Eleven of 13 multiple-hospital-visit patients demonstrated one or more aberrant behaviors, MVA, death or suicidal behavior; only 4 of 14 single-encounter patients demonstrated aberrancy (P = 0.011). The 15 patients who had aberrant behaviors (11 multiple hospital visits and 4 single visits) had 38 hospital encounters, only 6 of which could be related to narcotics (P = 0.0001). Aberrant behavior also did occur in patients who never went to the hospital.

Conclusions: Chronic pain patients seem to utilize hospital resources frequently; however, most hospital encounters, even in patients with aberrant medication use and undesirable outcomes, are related to coexisting medical, surgical, and psychiatric disease. More severe baseline disease or nontraditional use of healthcare resources is suggested.

Education

Hospital Pain Improvement Program Changes Pain-Related Myths Held by Hospital Providers

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Introduction: Pain management in the hospital setting is a high-volume, high-risk and problem-prone area that cuts across several areas of patient care, including patient rights, assessment, education, provision of care, and staff education. Despite the significant strides made in improving pain control in the past few decades, the undertreatment of pain remains a significant national and international problem. Following the implementation of a pain management performance improvement plan how much does the attitude and opinion of nurses and physicians on common pain management myths change?

Materials and Methods: To measure changes in the attitude and practice pattern of the providers, items were adapted from previously published studies addressing similar issues. Randomly selected charts were reviewed monthly to monitor progress in documentation. After obtaining baseline data, an interdisciplinary team was formed and a multiprong approach to improving hospital-wide pain management was implemented. Facets included staff and patient education, screening of pain as fifth vital sign, regular chart review, inclusion of information on pain in new employee orientation, training pain resource providers, organizing informational pain fair, and organizing regular town hall discussions with hospital staffs on pain topics by pain specialist.

Results: The questionnaire was administered to about 50 randomly selected providers in 1999 and repeated annually. The results showed that the proportion who believed that addiction to pain medication was uncommon rose from 50% in 1999 to 68% in 2003. The appropriate attitude of encouraging patients to talk about their pain continues to be maintained at a high level (76% in 1999 to 89% in 2003).

Conclusion: The data suggest that hospital-wide pain improvement programs when carried out using a multidisciplinary, multifaceted approach can lead to improved pain conceptions among hospital providers and this can be sustained over time.
References


Research

Pilot Study of Cervical Disc Decompression for Cervical Radicular Pain Using Coblation Technology

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Background: The tiered treatment of cervical radicular pain, due to a focal protrusion, which has failed to improve with noninvasive rehabilitation measures, frequently incorporates an epidural/ selective nerve root injection. Some have investigated the use of percutaneous discectomy as an additional option to avoid an open surgical procedure. The reported results of glucocorticoid injection have been mixed, ranging from 50% to 75% success. There are only limited published reports of percutaneous discectomy. All of them have used laser technology, and the methodology of these publications obviate the formulation of any judgment concerning their success.

Purpose: To report the effectiveness and side effects following percutaneous disc decompression using coblation technology combined with a selective nerve root injection (SNRI) to treat cervical radiculopathy.

Methods: Consecutive patients were prospectively enrolled. Inclusion criteria were arm greater than neck pain; corroborative focal protrusion on magnetic resonance image (MRI); a minimum of a corroborative myotomal deficit, positive electrodiagnostic study or positive diagnostic root block; failure of oral anti-inflammatory medication, physical therapy and/or imminent surgery. Patients were excluded with a focal protrusion over 5 mm. Side effects were assessed at six predetermined postoperative intervals through 2 weeks. Outcomes were assessed using a visual analog scale (VAS) preoperatively and at 2 weeks, 1, 2, 3, and 6 months postoperatively. Each subject was reviewed by a spine surgeon to determine if they were a potential operable candidate. Data collection was performed by an independent reviewer. Statistical analyses were accomplished using McNemar’s and the Wilcoxon signed rank test.

Results: Each of the 21 patients, ranging in age from 28 to 54, with an average symptom duration of 36 weeks, was considered a potential surgical candidate by a fellowship trained spine surgeon. Mean preoperative VAS was 6.9 (range 4–9). Mean serial follow-up interval VAS rating was: 2.9 (range 0–7.7; 3 with no pain) in 21 patients at 2 weeks; 2.1 (range 0–6.7; 11 with no pain) in 21 patients at 4 weeks; 1.7 (range 0–6.8: 12 with no pain) in 21 patients at 8 weeks; 1.2 (range 0–6; 8 with no pain) in 21 patients at 3 months; and 1.3 (range 0–8; 7 with no pain; 5 with VAS of 1; 3 with VAS of 2) in 19 patients at 6 months. There was a statistically significant reduction in the VAS rating at each follow-up ($P < 0.0001$). As well, there were clinically significant reductions in the VAS rating; mean percentage reduction of 58, 70, 75, 83, and 81 at the respective serial follow-ups for the entire population (failures and successes). There were no significant early term side effects. One patient underwent successful surgery between 8 and 12 weeks post procedure. One patient underwent repeat disc decompression and SNRI between 3 and 6 months post procedure.

Conclusions: This novel approach for the treatment of cervical radiculopathy merits further scientific investigation as 91–95% (19 or 20 of 21) of patients were successfully treated without any significant side effects. The outcome rate, rapid slope of symptom resolution, stability of response, and high frequency of complete arm pain resolution are superior to selective nerve root block alone and approximate open surgery.

Research

Interindividual Differences in Opioid Analgesic Usage in Chronic Pain Patients in Relationship to A118G Mu-Opioid Receptor Polymorphism

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Abstract

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Background: Effective analgesic requirements in chronic pain patients during treatment are difficult to predict because these patients show large interindividual variability in nociception and pain response after administration of opioid analgesics. Some portion of this population are carriers at least one allele for the mutated mu-opioid receptor gene (OPRM1). This mutation (A118G Single Nucleotide Polymorphism or SNP) may be responsible for the expression of an altered mu-opioid receptor (MOR) protein, and presumably altered analgesic response to opioid analgesics, when compared with the carriers of the wild-type MOR gene. The objective of this study was to determine allelic frequency and the effect of the A118G SNP of OPRM1 carrier-status on the interindividual variability of nociception and opioid analgesic requirements in this population.

Methods: The DNA of 127 chronic pain patients receiving long-term treatment with opioid analgesics in the Pain Clinic of a tertiary, academic medical center was analyzed for the A118G SNP. Relationship between the genotype and pain score (measured as numerical rating scale for current, least and worst pain) and opioid analgesic requirements (expressed in morphine equivalents/day) were investigated.

Results: A total of 108 patients were homozygous for the major allele (AA), 18 patients were heterozygous (AG) and 1 patient was homozygous (GG) for the minor allele. This distribution was in Hardy-Weinberg equilibrium. The OPRM1 genotype distribution did not differ in subgroups of patients administered opioids by the oral, systemic (fentanyl patch), or intrathecal routes (chi-square = 1.754, P = 0.723). No significant differences (P > 0.05) in pain scores (5.8 ± 2.2 vs 5.7 ± 1.8) or opioid analgesic requirements (308 ± 773 vs 182 ± 160 mg) were found between carriers of major and minor allele, respectively.

Conclusion: No relationship between the OPRM1 SNP polymorphism and interindividual variability in pain scores or opioid analgesic requirements was detected in chronic pain patients.

Reference

128

Research

Neurological Infarctions Following Cervical Transforaminal Epidural Steroid Injections

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Introduction: Cervical transforaminal injections of corticosteroids/local anesthetics are commonly performed in patients with cervical radiculopathy. One of the investigators (M.S.W.) has reviewed a number of medicolegal cases involving brainstem infarction after this procedure. In addition, there are published case reports of spinal cord infarctions. To better characterize these serious adverse events (SAEs), all U.S. physician members of the American Pain Society were surveyed (N = 1,404).

Methods: Anonymous surveys were sent asking about known neurological SAEs following a cervical transforaminal injection of local anesthetic, corticosteroid, or both. Additional variables were year of occurrence, setting where the procedure was performed, specialty of the treating physician, use of fluoroscopy/contrast/local anesthetic/corticosteroid, doses administered, and CT/magnetic resonance image (MRI)/autopsy findings.

Results: In all, 286 of 1,340 surveys (21.3%) were returned. Of these, 61 responses detailed 78 severe neurological complications associated with cervical transforaminal injections. Outcomes included brainstem/cerebellar/cerebral infarcts (N = 13), spinal cord infarcts (N = 11), concurrent brain/spinal cord infarcts (N = 2), other neurological sequelae (N = 23), or unspecified (N = 29). Twelve cases resulted in a fatal outcome, six of which were associated with brain infarction. Seventy-seven percent were performed by anesthesiologists and 17% by physiatrists. Medications included corticosteroid plus local anesthetic (92%), corticosteroid alone (6.2%), and air embolus (1.5%). All four cases with steroid alone involved methylprednisolone, resulting in cerebellar infarct (N = 3) or posterior cerebral territory infarct (N = 1). Three of these were fatal outcomes, and two autopsies revealed no vertebral artery trauma.

Conclusions: This study demonstrates a significant risk of serious neurological injury after cervical transforaminal injections.
inal epidural steroid injections. The exact mechanism is yet to be determined; however, the results of this study suggest a strong correlation with the use of methylprednisolone. Other possible mechanisms include vertebral artery injury with thrombus formation or an inflammatory response to the methylprednisolone at the level of the central nervous system end arteries.

References

Funding: Department of Family and Preventive Medicine, University of California, San Diego.

Research

Comprehensive Pain Rehabilitation for Men with Fibromyalgia

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Introduction: The clinical outcomes of comprehensive pain rehabilitation for men with fibromyalgia (FM) have not been previously reported. This study of men with FM was conducted to test the hypothesis that measures of depression, pain perception, and psychosocial impairment are similar to women and that these measures improve during a 3-week outpatient cognitive-behavioral pain rehabilitation program.

Methods: This retrospective cohort study included 36 consecutive men and 219 consecutive women with FM treated between January 1998 and May 2004. At both admission and dismissal, patients completed the Multi-dimensional Pain Inventory (MPI) [1], SF-36 Health Status Questionnaire (SF-36) [2], Center for Epidemiologic Studies-Depression (CES-D) [3], and the Coping Strategies Questionnaire catastrophizing subscale (CSQ-C) [4]. A two-way repeated measures of analysis of variance was conducted to compare men and women with FM at the time of admission and dismissal. Additionally, the difference in mean admission and dismissal scores was analyzed using paired t-tests (two-tailed).

Results: The mean (SD) age and duration of illness for men was 45 years (12) and 11.8 years (13.5) while the mean (SD) age and duration of illness for women was 46 years (13) and 9.8 years (9.0), respectively. No statistically significant ($P > 0.05$) gender effect was identified. However, the difference in mean admission and dismissal scores from six subscales of the MPI and SF-36 demonstrated significant improvement ($P < 0.001$). Similarly, scores from the CES-D and CSQ-C also showed significant improvement ($P < 0.001$). In general, pain severity, depression, and catastrophizing declined while perceived control, health perception, and physical/social functioning improved.

Discussion: These results support the hypothesis that men and women with FM have similar measures of psychosocial function, health attributes, negative pain-related emotions and depression and that these measures improve markedly following comprehensive pain rehabilitation.

References
Abstract

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Introduction: The ongoing obesity epidemic has created formidable challenges for physicians engaged in the postoperative care of these patients. Postoperative pain management of the obese may be challenged by considerations of altered airway management, cardiopulmonary physiology, drug dosing calculations, and negative associations by healthcare workers toward these patients [1]. We compared the satisfaction of postoperative pain management of obese and nonobese patients.

Methods: Twenty patients with a body mass index (BMI) greater than 27 (25% greater than ideal weight) and 20 patients with BMI less than 27 were treated in the Post-Anesthesia Care Unit (PACU) after joint replacement surgery utilizing a pain management protocol whereby morphine sulfate was administered based on body weight and numerical rating scale. Data concerning patient satisfaction with pain management, milligrams of morphine administered, and pain scores were collected.

Results: Seventy-five percent of patients with a BMI less than 27 were satisfied with their pain management in the PACU, while only 25% of patients with a BMI greater than 27 were satisfied. Eighty percent of patients with BMI greater than 27 received less total morphine sulfate, and reported numeric pain scores significantly higher than patients with BMI less than 27. Conclusion: Obese patients may be at significant risk for undertreatment of acute postoperative pain. This may reflect unwarranted bias against this patient population [2].

References

Research

Duloxetine at Doses of 60 mg QD and 60 mg BID Is Effective in Treatment of Diabetic Neuropathic Pain (DNP)
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Objective: Serotonin (5-HT) and norepinephrine (NE) are involved in pain modulation via descending inhibitory pathways in the brain and spinal cord. This study assessed the efficacy of duloxetine, a potent, selective, and balanced inhibitor of 5-HT and NE reuptake, on the reduction of pain severity, in patients with neuropathic pain (DNP).

Methods: Patients with DNP and without comorbid depression were randomized to treatment with duloxetine 60 mg QD, 60 mg BID, or placebo for 12 weeks. The primary outcome measure was the weekly mean score of 24-hour average pain severity on the 11-point Likert scale. Secondary measures included night and 24-hour worst pain severity, Brief Pain Inventory (BPI), Clinical Global Impression of Severity (CGI-S), Patient Global Impression of Improvement (PGI-Improvement), Short-Form McGill Pain Questionnaire, Dynamic Allodynia, and Average Daily Intake of Acetaminophen.

Results: Duloxetine 60 mg QD and 60 mg BID demonstrated significant improvement in the treatment of DNP and showed rapid onset of action, with separation from placebo occurring at week 1 on the 24-hour average pain severity score. For all secondary measures for pain (except allodynia), mean changes showed superiority of duloxetine over placebo, with no significant difference between 60 mg QD and 60 mg BID. Reduction in 24-hour average pain severity was caused by direct treatment effect. CGI and PGI evaluation also demonstrated greater improvement on duloxetine- versus placebo-treated patients. Duloxetine showed no notable interference on diabetic control, and both doses were safely administered and well tolerated.

Conclusion: This study confirms previous findings that duloxetine at 60 mg QD and 60 mg BID is safe and effective in treating DNP.

References

Funding: Eli Lilly and Company.
Duloxetine for Patients with Diabetic Neuropathic Pain: A Six-Month Open-Label Safety Study

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Introduction: Duloxetine is a balanced and potent reuptake inhibitor of both serotonin (5-HT) and norepinephrine (NE). As 5-HT and NE inhibit pain via descending spinal cord pathways, duloxetine’s dual reuptake inhibition activity may make it an effective agent for the treatment of diabetic neuropathic pain.

Study Design: In a 28-week, multicenter, open-label study, 449 patients diagnosed with diabetic neuropathic pain (DN) were randomized 3 : 1 to either duloxetine 60 mg BID or duloxetine 120 mg QD treatment groups. The primary study objective was to assess duloxetine’s tolerability and safety in DN patients. Standard clinical tests, labs, and electrocardiograms were performed for all patients. Secondary efficacy measures included the Brief Pain Inventory (BPI) and Clinical Global Impression of Severity (CGI-S) scales.

Results: Protocol completion rates were 63.8% and 62.6% for the duloxetine 60 mg BID (N=213) and duloxetine 120 mg QD (N=72) patient groups, respectively. Both treatment groups showed improvement from baseline to end point on all subscales of the BPI and the CGI-S (P<0.005). Adverse events were the most frequent cause of discontinuation for both treatment groups. Statistically significant but clinically unremarkable changes occurred in some cardiovascular parameters from baseline to end point. In both duloxetine treatment groups, heart rate increased slightly (P<0.05) and systolic blood pressure (BP) was unaffected while diastolic BP decreased slightly in duloxetine 120 mg QD treatment groups. A sustained (three consecutive visits) BP elevation was reported for 18 (5.5%) and 6 (5.4%) of patients receiving duloxetine 60 mg BID and duloxetine 120 mg QD, respectively.

Conclusions: For patients with DN, duloxetine is tolerable as demonstrated by its high percentage of patients completing the study, can be safely administered, and was efficacious in improving the painful symptoms associated with diabetic neuropathy.

References

Funding: Eli Lilly and Company.

Remoxy®, A Novel Drug Candidate, Deters Oxycodone Abuse in Humans

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Aim: Abuse and diversion of controlled-release (CR) oxycodone is of great concern to health officials. Abusers can easily extract the full dose of oxycodone from CR preparations, resulting in an immediate, large spike in oxycodone blood levels and a powerful morphine-like high. Recreational use of oxycodone can lead to respiratory depression, death, or opiate addiction. In the U.S., oxycodone abuse resulted in over 20,000 emergency room visits and hundreds of deaths in 2002. Remoxy is a novel oxycodone formulation designed to deter abuse. Remoxy’s gel-cap formulation provides a long-acting dose of oxycodone from CR preparations, resulting in an immediate, large spike in oxycodone blood levels and a powerful morphine-like high. Recreational use of oxycodone can lead to respiratory depression, death, or opiate addiction. In the U.S., oxycodone abuse resulted in over 20,000 emergency room visits and hundreds of deaths in 2002. Remoxy is a novel oxycodone formulation designed to deter abuse. Remoxy’s gel-cap formulation provides a long-acting dose of oxycodone, yet cannot be abused by crushing, freezing, heating, or dissolving in water, alcohol, or other common beverages. The pharmacokinetics of Remoxy versus commercially available CR oxycodone are compared after swallowing whole and following abuse by crushing.

Methods: Remoxy 10 mg and a commercially available sustained-release oxycodone 10 mg were first swallowed whole by healthy male volunteers. In tests designed to mimic common methods of abuse, each drug was crushed and stirred in water or alcohol before ingestion. After each dosing, plasma oxycodone levels were

Abstract
monitored for 48 hours and also compared with those produced by an immediate-release (IR) commercial oxycodone formulation. Results: Remoxy and the commercial CR formulation produced similar plasma oxycodone levels when each was swallowed whole. After crushing and ingesting with water or alcohol, the commercial CR formulation resulted in even higher oxycodone plasma concentrations than those produced by the IR oxycodone tablet. In contrast, oxycodone plasma concentrations after crushing Remoxy were markedly lower at early time points compared with both the commercial IR and crushed CR formulations and only slightly above levels produced by swallowing Remoxy whole. Conclusions: These results demonstrate Remoxy is a safer alternative to commercially available CR oxycodone. The expected benefits of Remoxy include less illicit use, less oxycodone diversion, and fewer oxycodone-related fatalities.

Funding: Pain Therapeutics, Inc.

134 Research

Labor Market, Financial, Insurance, and Disability Outcomes among Near Elderly Americans with Depression and Pain: A National Study

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Background: Symptoms of depression and pain commonly coexist and contribute to worsening health status and higher healthcare costs. We analyzed the relationship between depression and pain on labor market, financial, insurance, and disability outcomes among Americans aged 55–65.

Methods: Cross-sectional data from Wave 3 of the Health and Retirement Survey, a nationally representative sample of individuals aged 55–65 surveyed in 1996 were used. Multivariate regression analyses, controlling for sociodemographics and chronic health conditions, estimated the association between depression and pain on economic outcomes. Outcomes included: work and retirement status, household income and wealth, healthcare costs, government health insurance, social security, health limitations and activities of daily living (ADLs) affecting work. Primary explanatory variables included the presence or absence of depression with or without self-reported pain.

Results: Individuals with depression and pain versus those with conditions singly were less likely to work for pay, had higher total medical expenditures, and were more likely to report limitations in ADLs and health limitations on work (all \( P < 0.01 \)). Depression with pain strongly predicted work status, retirement, household income, total wealth, total medical expenditures, government insurance, social security earnings, limitations in ADLs, and health limitations affecting work (both \( P < 0.01 \)).

Discussion: Depression with pain was associated with poor labor market, financial, insurance, and disability outcomes in a nationally representative sample of near elderly adults. These cross-sectional analyses cannot identify causal effects of depression with pain. However, individuals with depression plus pain were at increased odds of receiving government supports and may have worse access to care because of leaving employment early. Depressed individuals with pain may benefit from treatment that addresses the duality of these conditions. Further understanding is needed of the medical professional’s ability to diagnosis and treat these patients and the perceived barriers individuals face in seeking, accessing, and adhering to treatment.

References


Funding: Eli Lilly and Company.

135 Research

Effects of Age, Gender, Body Weight, Race, and Renal Function on the Pharmacokinetics (PK) of Hydromorphone HCl Extended Release (HHER) q24h Capsules in Patients with Persistent Pain

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Introduction: To compare the pharmacokinetics (PK) of a once-daily hydromorphone HCl extended release (HHER) (Palladone in the U.S., Palladone XL in the...
UK; Hydal Uno Retard in Austria) capsules in patients with stable moderate-to-severe pain, mainly associated with cancer, for differences based on age, gender, body weight, race, and renal function.

Methods: Patients were administered HHER capsules to a stable daily dose of 12–84 mg. After their final HHER dose, patients provided blood samples for PK over 6 hours. A total of 135 patients were evaluated for their steady-state dose-normalized PK metrics, total exposure (AUC), and trough levels (Cmin).

Results: For age (young: 32–64 years (N = 89), elderly: 65–75 years (N = 31), very elderly: >75 years (N = 15)), AUC and Cmin increased approximately 31% and 22%, for elderly versus young, and approximately 52% and 63%, respectively, for the very elderly versus young; there was significant overlap among and variability within the groups. Comparing gender (64 males vs 71 females) resulted in AUC and Cmin values 20–21% higher for females. There was no correlation between body weight and dose-adjusted exposure or dosage of HHER. There were no apparent differences in PK observed based on race/ethnicity (white, black, Hispanic), although the small percentage, 12.5%, of nonwhites precluded statistical comparisons. PK metrics increased with decreasing renal function-creatinine clearance (Clcr > 80 mL/minute = normal (N = 54), 50–80 = mild (N = 61), 30–49 = moderate (N = 15), <30 = severe (N = 5)): 41% in AUC and 33% in Cmin from normal to mild impairment, with increases up to 64% and 78%, respectively, in patients with severe impairment.

Conclusions: Based on these data, dose adjustment of HHER in patients does not appear to be necessary for differences in age, gender, body weight, race, or normal renal function.

Reference

136
Research

The Relationship and Outcomes of Depression and Painful Complaints: A 23-Year Follow-up

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Pain commonly occurs with depression and may be associated with persistence of depression over time. Therefore, we evaluated the association of pain on 23-year outcomes across depression and matched community control cohorts. Beginning in 1980, 424 patients treated for major depression (MDD) and 424 controls completed mailed surveys. Twenty-three-year wave participants included 72.9% and 74.6% of surviving baseline patients and controls, respectively. Analysis of covariance was conducted across outcomes adjusting for age, gender, education, and medical conditions.

Compared with controls at the 23-year follow-up, the patient cohort experienced increased painful symptoms (2.99 vs 2.14 as measured by Patient Health Questionnaire-PHQ) and overall disability from pain (30.16 vs. 18.12—Graded Chronic Pain Scale) after covariate adjustment (both P < 0.001). Compared with controls, patients who experienced pain were more likely to have current MDD as measured by the PHQ (15.9% vs 6.3%, P < 0.013). Among participants with pain (controlling for sociodemographics and medical conditions), the depressed patient cohort reported more medications used (3.59 vs 1.81, P < 0.001) and days cut down on usual activities (5.38 vs 3.39; P < 0.015). In the absence of pain, patients differed from controls only on the number of medications ever used (2.38 vs 0.933, P < 0.001).

This study illustrates how depression and pain measured 23 years after initiating depression treatment affects their long-term functional and workplace outcomes relative to a matched community control cohort. Pain was more prevalent 23 years post index in the depressed patient cohort compared with the community control cohort. Among individuals with pain, depressed patients showed poorer functioning and used more medications than did controls. Among individuals without pain, depressed patients differed from controls only
in that they used more medications. At 23 years after
the index depression treatment, patients with current
pain have more severe depression than did patients
without pain.

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Funding: Eli Lilly and Company.

Automated vs. Manual Spinal Cord Stimulator
Adjustment: A Sensitivity Analysis of Lifetime Cost
Data from a Randomized, Controlled Trial

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Objective: This study tested the lifetime cost savings
achieved with automated, computerized adjustment
versus manual adjustment of spinal cord stimulator
parameters, as impacted by usage time/day, inflation
rate, discount rate, and years of use, in patients with
“totally implanted” power generators with primary
cells, which require surgical replacement when
deprecated.

Methods: We conducted cost sensitivity analyses using
a standard spreadsheet method with a suitably adjusted
standard equation and data from a previously reported
randomized controlled trial that compared results with
the two methods of stimulator adjustment.

Results: When cost is calculated to consider various
hours/day of use, inflation rates, discount rates, and
years of use, spinal cord stimulation (SCS) treatment
remains significantly less expensive when a patient uses
the automated system to adjust the stimulating para-
eters, by comparison with the cost of operating the
system when the parameters are adjusted manually. This
cost savings is attributable to increased battery life.

Conclusion: Computerized, patient-directed parameter
adjustment significantly improves the cost-effectiveness
of SCS as a therapy for chronic pain. The economic
model we developed is robust across a representative
range of study parameters, as determined by sensitivity
analyses.

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using a computerized, patient-interactive program-

A Randomized Double-Blinded Prospective Study
Comparing the Efficacy of Continuous
Radiofrequency Lesioning to Pulsed
Radiofrequency Lesioning in the Treatment of
Lumbar Facet Syndrome

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Introduction: Lumbar facet joint denervation of the
medial branch of the dorsal ramus by continuous radio-
frequency lesioning (RF) has been used for over
25 years and has been shown to result in significant pain
relief and improved function [1]. Pulsed radiofrequency
(PRF) is a new technique introduced in an attempt to
reduce postprocedure discomfort and neuritis. This is
the first study to compare efficacy between the two
techniques.

Methods: Fifty patients were randomized to receive
either RF or PRF treatment. Inclusion criteria included
back pain without radiation below the knee of at least
1-month duration, reproducible pain, no focal neuro-
logical deficits, and a negative magnetic resonance
image (MRI)/CT scan for disc herniation or stenosis.
Two separate diagnostic median branch blocks with
local anesthetic must have resulted in at least a 50%
short-term reduction in pain. The RF group received
continuous energy delivered at 80°C for 75 seconds,
while the PRF group had energy delivered at 42°C with
a pulse duration of 20 millisecond at 460.8 kHz and
frequency of 2 Hz for 120 seconds. Visual Analogue
Scale Pain Assessment (VAS) and Modified Oswestry
Low Back Pain and Disability Questionnaire (OWS)
were administered at baseline and 3 months post treatment. Additional questionnaires were completed documenting changes in work status, medication usage, confounding treatments, and complications. Comparisons between groups were assessed using relative percentage improvement. Comparisons between groups and within groups were made of the VAS and OSW using Student's t-test and paired t-tests.

Results: Of the 50 patients studied, 26 completed the follow-up evaluation; half received RF and half PRF. In the RF group, the VAS improved at 3 months by an average of 24.7% (SD 50.1), whereas the PRF group improved by 10.6% (SD 45.0). The OWS in the RF group improved by an average of 18.3% (SD 30.7), and the PRF group by 4.1% (SD 44.3). There were no significant differences in the relative improvements between groups in either the VAS (P = 0.46) or the OWS (P = 0.33). Within the PRF group, comparisons of the relative change at 3 months for both VAS (P = 0.21) and OSW scores (P = 0.61) were not significant. However, within the RF group, the VAS (P = 0.02) and OSW scores (P = 0.03) improved significantly at 3 months.

Discussion: This study suggests that there was no significant difference in long-term outcome in the treatment of lumbar facet syndrome between the RF and PRF groups. However, in patients who received RF there was significant improvement in both VAS and OWS at 3 months post treatment, findings not seen with PRF.

Reference

139
Research
Anesthesiologists Use Different Patient Selection Criteria Than Neurosurgeons to Predict Success of Spinal Cord Stimulation Therapy

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Introduction: Spinal cord stimulation (SCS) therapy has been shown to be an effective modality to control pain [1]. In addition to anesthesiologists, specialists in neurosurgery, neurology, orthopedic surgery, and physical medicine and rehabilitation utilize SCS as part of the treatment regimen for chronic pain. Failures with this treatment have been attributed to implant technique, physiologic adaptation, changing disease state, increased activity level, and hardware or mechanical failures. However, patient selection criteria, particularly psychosocial factors, were recently identified as the primary reason to explain the inability of patients to achieve sustained long-term pain relief with SCS therapy [2]. As part of a national survey, we asked physicians from different specialties to identify patient selection criteria felt important to predict success with SCS therapy.

Methods: A 38-question survey was mailed to 1,000 SCS implanters across the United States in April 2003. Physician specialists surveyed represented anesthesiology, neurosurgery, neurology, orthopedic surgery, and physical medicine and rehabilitation. Practitioners were asked to identify important criteria used in the patient selection process for SCS therapy. Areas surveyed were: 1) priority of criteria used for patient selection; 2) percentage of patients who require psychological evaluation prior to trial; and 3) elements of a psychological evaluation that eliminate a patient as a candidate for a trial. Physician responses were compared by specialty to determine practice pattern variances. Statistical significance between specialties regarding categorical and ordinal outcomes was assessed using chi-square tests of association or Fishers exact test. Wilcoxon rank-sum tests were used for percentage outcomes.

Results: A total of 165 surveys were completed and analyzed. As 91% of the respondents were anesthesiologists or neurosurgeons, only these two groups were included for comparative analysis. Compared with anesthesiologists, neurosurgeons considered a clear etiology of pain to be a very important factor in the selection of appropriate candidates for SCS therapy (P < 0.05). However, anesthesiologists identified patients with a current substance abuse history as very poor candidates for success of this therapy more often than neurosurgeons (P < 0.005). Physicians from both specialties required psychological evaluation of patients prior to SCS trial in 75–100% of cases (P = 0.2). Borderline personality and bipolar disorder were identified by anesthesiologists more commonly as exclusion criteria for SCS trial (P < 0.05).

Conclusions: SCS therapy is an integral part of the management of chronic pain states utilized by physicians of different specialties. This survey highlights significant differences in selection criteria used by anesthesiologists and neurosurgeons to identify candidates likely to be successful with this mode of therapy. These data should serve as an impetus for the development of well-controlled prospective studies to assess if these differences in practice patterns affect patient outcomes.

Summary: Significant differences exist between anesthesiologists and neurosurgeons in the selection criteria used for SCS therapy, including the identification of a
clear etiology of the painful condition, presence of active substance abuse, and diagnoses of borderline personality or bipolar disorder.

References

Funding: Medtronic Inc.

Research
Impact of Depression on Functional Status, Health-Related Quality of Life (HRQoL), and Pain Outcomes in Chronic Low Back Pain Patients Treated with Fentanyl Transdermal System

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Introduction: This study investigates the impact of comorbid depression on functional status and pain outcomes in chronic low back pain (CLBP) patients treated with transdermal fentanyl.

Methods: Data come from an observational study conducted at 17 clinical centers in the U.S. eligible patients (N = 131) who had CLBP for >3 months and were receiving short-acting opioids when transdermal fentanyl was added. Patients completed the Treatment Outcomes in Pain Survey (TOPS), the SF-36 Health Survey, the Oswestry Disability Index (ODI), and a 10-point numerical rating scale (NRS) of pain severity at baseline and after >9 weeks of transdermal fentanyl treatment. Comorbid depression was defined as a score <42 on the SF-36 mental health scale at baseline and final visits. Nondepressed patients scored >42 on the SF-36 mental health scale at baseline and final visits. Changes in TOPS, SF-36, ODI and NRS scores from baseline to final visits were compared between depressed and nondepressed CLBP patients using Student’s t-tests.

Results: Nearly one-half of CLBP patients had comorbid depression (N = 62). Nondepressed CLBP patients showed significantly larger improvement than depressed CLBP patients in SF-36 physical functioning (5.4 vs 1.6 points, P < 0.01), role physical (5.2 vs 2.1 points, P < 0.05), and physical summary (6.3 vs 2.5 points, P < 0.05) scales, the TOPS lower body functioning (11.3 vs −4.9 points, P < 0.05) and total pain experience (−9.8 vs −5.9 points, P < 0.05) scales, the ODI (−11.9 vs −3.5 points, P < 0.01), and the NRS (−1.9 vs −1.1 points, P < 0.05). Changes in other SF-36 and TOPS scales were generally greater among nondepressed CLBP patients, although the differences were not statistically significant.

Conclusion: Although depressed CLBP patients realized HRQoL improvements with transdermal fentanyl, this improvement was generally more favorable in nondepressed patients. Effective management of pain and HRQoL outcomes in CLBP patients requires an assessment of comorbid depression.

Funding: Janssen Medical Affairs, L.L.C.

Research
Analgesic Effects of Preoperative Versus Postoperative Femoral Nerve Block in Patients Undergoing Total Knee Replacement Surgery

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Introduction: Femoral nerve block (FNB) is commonly used to alleviate pain after total knee replacement (TKR). Although the efficacy of this block is established, the effects of preoperative versus postoperative FNB have not been studied. The aim of this study was to compare the effects of preoperative versus postoperative FNB in patients undergoing TKR.
Material and Methods: Thirty patients were enrolled in the study. Patients were randomly assigned into two groups with both groups receiving general anesthesia. Group A received FNB preoperatively and group B received FNB postoperatively. FNB consisted of a single injection technique of 30–40 mL of ropivicaine 0.5% with epinephrine. A nerve stimulator was used for nerve identification. Pain scores were assessed with a visual analog pain scale (VAS) at hourly intervals in the recovery room (RR), the morning after surgery and at the completion of the study. Narcotic requirements in the operating room, RR, and ward were collected for each patient.

Results: Twenty-nine patients completed the study. Group A had 14 patients and group B had 15 patients. The two groups were similar with respect to age and sex ($P > 0.05$ NS). No differences were observed between groups in pain scores collected in the RR ($P = 0.71$ NS) or the morning after surgery ($P = 0.44$ NS). Group B had lower pain scores at the completion of the study ($P = 0.01$). Intraoperative and RR narcotic administration was similar between groups ($P = 0.48$ NS and $P = 0.86$ NS, respectively). No differences were observed between the groups in postoperative narcotic utilization ($P = 0.158$ NS).

Conclusion: The decision to perform FNB preoperatively or postoperatively is driven by several factors, including time considerations, patient preference, and reimbursement issues. This study found little evidence that the timing of the procedure conferred any particular benefit to either patient group.

References

How Useful Is Level of Satisfaction as an Outcome Measure for Pain Management in Cancer Patients?

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Introduction and Study Aim: Multiple epidemiologic surveys have documented the high prevalence of pain in cancer patients. Many cancer patients would consider suicide if their pain was not well controlled. One of the problems inherent in assessing and managing pain is the absence of objective outcome measures for pain. The numeric pain scale and patient satisfaction are often used as pain outcome measures. The aim of this study was to determine if cancer patients who report less pain on the numeric rating scale have higher satisfaction compared with those with higher pain levels.

Materials, Method, and Results: We surveyed 56 oncology patients in the outpatient (39) and inpatient (17) settings, using an adaptation of the American Pain Society quality improvement pain questionnaire. Current pain scores ranged from 0 to 10 with a median score of 3. Sixty-three percent had mild pain (0–3). Sixteen percent had moderate pain (4–6), while 21% reported severe pain (7–10). Forty-seven percent of the patients surveyed reported that they were very satisfied with the way the physicians had managed their pain care, 47% were satisfied, while 5% were dissatisfied. Using chi-square analysis, there was no statistically significant relationship between the average pain score (in the last 30 days) and level of satisfaction or the degree of pain relief obtained with treatment and level of satisfaction at $P = 0.1$ or less.

Conclusion: Our results suggest that although level of patient satisfaction is commonly used as an outcome measure of pain care, there was no statistically significant relationship between the average pain level or degree of relief obtained from pain treatment and degree of patient satisfaction. This needs to be confirmed with larger studies. Clinicians and researchers should understand that there are several nonpain-related factors that influence the level of satisfaction of patients with their pain care.

References
Abstract

pain syndromes. As the popularity of this medication has increased, so have reports of drug diversion and OxyContin-associated deaths. This study was conducted so to provide quantitative information concerning compliance with OxyContin prescriptions in chronic pain patients. Data were also collected for other common opioids and illegal drugs (not discussed here).

Materials and Methods: Random, urine samples were collected from 14,712 patients prescribed opioids for chronic pain syndromes by the staff of 127 outpatient pain clinics. Urine samples were analyzed by two, quantitative, commercial Methods: 1) Abbott FPIA; and 2) GCMS using commercial protocols available from UD Testing, Inc., Marco Island, FL. These protocols adjust raw urine drug concentrations so to compensate for urine dilution, urine pH, body weight, and renal function. Data were collected for commonly prescribed opioids (oxycodone/oxymorphone, hydrocodone/hydromorphone, codeine/morphine, 6MAM), benzodiazepines, and drugs of abuse by a certified, independent laboratory.

Results: Evaluation of the urine demonstrated that, of urines collected from patients prescribed OxyContin and analyzed by GCMS and FPIA: 1) 20.1% were negative for opioids; 2) 53.6% failed to be within expected ranges for urine concentration-dose curves; and 3) 33.5% were within expected ranges for urine concentration-dose curves. Also, 13.7% of patients prescribed medications other than OxyContin or oxycodone IR were positive for oxycodone by GCMS and FPIA. Oxycodone dose-urine concentration curves were generated using data from compliant patients (normalized to standard conditions) for both FPIA and GCMS:

(*) FPIA = 40.6*(total daily dose)**0.44
(*) GCMS = 142*(total daily dose)

Conclusion: The quantitative urine opioid, monitoring protocol commercialized by UD Testing, Inc., using either FPIA or GCMS, is a viable tool for monitoring compliance with OxyContin and other opioids prescriptions. Such monitoring has demonstrated that many patients prescribed OxyContin are not compliant with their prescriptions. Compliance can be improved by intervention.

Funding: UD Testing, Inc.

Research

Effective Titration with Oxymorphone Extended Release in Opioid-Naive Patients with Low Back Pain

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Introduction: Opioid-related adverse events (AEs) can limit tolerability in opioid-naive patients. Cautious titration from a low dose may improve tolerability. This study evaluated the tolerability of oxymorphone extended-release (ER) in opioid-naive patients experiencing chronic, moderate-to-severe low back pain (LBP) by carefully titrating from a low starting dose (5 mg) to an effective stable dose.

Materials and Methods: An open-label study was performed in outpatients 18 years of age or older with a baseline pain intensity score of 40 or more on a 100-mm visual analog scale and a pain rating of moderate or severe on a categorical scale. Patients received oxymorphone ER 5 mg q12h for 2 days and were then titrated for 31 days or less to an effective stable daily dose. The primary outcome assessment was the tolerability of oxymorphone ER during dose titration.

Results: Forty-eight patients with LBP were enrolled. The mean average pain at baseline was 6.3 on a 0–10 scale of increasing pain. Thirty-nine patients (81.3%) were successfully titrated to an effective stable dose that reduced pain to less than or equal to 4/10 for 3 of 5 consecutive days; most stabilized patients (28/39, 72%) were titrated within 14 days. Six (12.5%) patients discontinued because of AEs and one (2%) each for protocol violation, withdrawing consent, or failure to meet titration criteria. Mean daily dose of oxymorphone ER was 32.7 mg (range, 10–100 mg). The most common AEs were those typically associated with opioid treatment, including constipation (37.5%), somnolence (25%), and nausea (25%); however, the rate of vomiting was low (6.3%).

Conclusions: Oxymorphone ER was well tolerated by most opioid-naive patients with chronic, moderate-to-severe LBP when therapy was initiated at a low dose (5 mg q12h), followed by titration to a stable dose that provided effective pain relief.

References


Funding: Endo Pharmaceuticals, Inc., and Penwest Pharmaceuticals Co.
Research

Duloxetine for the Management of Diabetic Peripheral Neuropathic Pain: Safety and Tolerability in Patients with Baseline Comorbid Conditions

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Background: Duloxetine has been shown to be safe and effective in the management of diabetic peripheral neuropathic pain (DPNP). Diabetic patients are predisposed to hypertension and other chronic medical conditions. Here we assess safety and tolerability data for duloxetine in patients with DPNP who also had comorbid conditions at study entry.

Methods: Data were pooled from two double-blind, placebo-controlled studies in which patients (age ≥ 18 years) with a diagnosis of DPNP were randomized to receive duloxetine (20 mg QD, 60 mg QD, or 60 mg BID; N = 568), or placebo (N = 223) for 12–13 weeks. Safety assessments included discontinuation rates, spontaneously reported treatment-emergent adverse events, and changes in vital signs.

Results: At study entry, mean age across all patients was 60.4 years (SD = 10.8), mean duration of diabetes was 10.8 years (SD = 9.6), and mean duration of diabetic neuropathy was 3.8 years (SD = 4.1). The most commonly utilized concomitant medications included analgesics (aspirin, acetaminophen), oral antidiabetics (metformin, glibenclamide, glipizide), cholesterol-lowering agents (atorvastatin, simvastatin), and antihypertensives (lisinopril, atenolol). The most common comorbid conditions among all patients (other than diabetes mellitus) were hypertension, hyperlipidemia/hypercholesterolemia, gastroesophageal reflux disease, and erectile dysfunction. The rate of discontinuation because of adverse events in duloxetine-treated patients with baseline hypertensive disorders was similar to that in patients without hypertensive disorders (13.5% vs 14.5%, respectively). The incidence of treatment-emergent adverse events in patients with baseline comorbid conditions was similar to that observed in patients who did not have the condition at baseline. Mean baseline-to-end point changes in sitting systolic and diastolic blood pressure (BP) in patients with baseline elevated BP did not differ significantly from those observed in patients without elevated BP at baseline (e.g., for sitting systolic BP, elevated: duloxetine –9.3 mm Hg vs placebo –8.4 mm Hg, P = 0.639; normal: duloxetine 3.6 mm Hg vs placebo 2.0 mm Hg, P = 0.255).

Conclusions: In this study, the safety and tolerability of duloxetine in the management of DPNP were not significantly affected by the presence of baseline comorbid conditions

Reference

Funding: Eli Lilly and Company.

Research

Reduced Addictive Potential of Oxytrex(tm) vs. Oxycodeone in Rats

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Aim: Oxytrex(tm), a novel drug candidate for moderate-to-severe pain, combines oxycodone and ultra-low-dose naltrexone, an opioid antagonist. A clinical trial in osteoarthritis showed significantly greater pain relief from Oxytrex than from oxycodone. Ultra-low-dose opioid antagonists have also been shown to alleviate opioid tolerance and dependence in rodents. The present work assessed the potential for abuse and addiction of Oxytrex versus oxycodone in rat models of drug reward, drug-taking, and drug-seeking.

Methods: The acute rewarding or “euphoric” effects of Oxytrex versus oxycodone were assessed in the conditioned place preference paradigm. Time spent in an environment previously paired with Oxytrex or with oxycodone indicated the rewarding potency of each. The acute potential of each drug was assessed by measuring active drug-taking and subsequent drug-seeking displayed during abstinence. Rats pressed a lever for IV infusions of oxycodone or Oxytrex under a schedule of increasing lever-pressing requirements. After three extinction sessions in which drug was unavailable, lever-pressing was measured again after rats received a “free” injection of oxycodone or were sub-
mitted to foot-shock stress, mimicking triggers of relapse in human addicts.

Results: Rats showed a conditioned place preference to oxycodone but not to Oxytrex, suggesting a lack of rewarding effect of an analgesic dose of Oxytrex. In the self-administration experiment, rats self-administering Oxytrex took more infusions than rats self-administering oxycodone, suggesting a lower rewarding potency of Oxytrex compared with oxycodone. Rats self-administering Oxytrex also showed significantly reduced drug-seeking precipitated by the triggers of relapse.

Conclusion: While providing greater analgesia, Oxytrex may have a reduced potential for abuse and addiction compared with oxycodone. The ultra-low-dose naltrexone component of Oxytrex may suppress the rewarding properties of oxycodone and the vulnerability to relapse, possibly by reducing opioid-induced neuroadaptive changes that contribute to addiction.

References

Funding: Pain Therapeutics, Inc.

Research

Gender Difference in Abuse History Among Black and White Persons with Chronic Pain

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Physical or sexual abuse history is associated with chronic pain (CP); however, most research has focused only on the prevalence and incidence of abuse in women. Gender variations in abuse patterns have received little attention. We hypothesized that although the prevalence of abuse is higher in women with CP, men with CP may also suffer from abuse with a different pattern based on gender and age. A prospective cohort study of chronic pain patients 18–50 years at a tertiary care pain center was conducted. At baseline the Drossman Abuse Questionnaire (DAQ), the McGill Pain Questionnaire, SF-36, Pain Disability Index, and Post-Traumatic Chronic Pain Test were used. Participants completing the DAQ were included in analyses (N = 165; 91% response): women (64%), educated (68% >high school), in a long-term relationship (51%), employed (59%), and Caucasian (50%). Bivariate correlations and factor analysis identified six 3-item abuse factors (α = 0.77 – 0.91): sexual molestation (shown sexual organs, touched and forced to touch), sexual penetration or rape (threat of rape, attempted rape, and actual rape), and physical abuse (threat of hitting or kicking, actual hitting or kicking, and threat of harm) in both childhood and adulthood. The majority of women (50%) and men (61%) reported abuse in childhood and adulthood (53% and 59%). Women reported higher molestation (P = 0.06) and lower physical abuse scores (P = 0.01) in childhood than men, and higher penetration (P = 0.02) in adulthood. In conclusion, our study supports previous findings that men have higher rates of childhood physical abuse. We also found a high prevalence of both rape (18%) and molestation (20%) in childhood among men with CP. These results stress that questions regarding abuse need to be routinely asked to both men and women with CP. Further research is needed to investigate the long-term repercussions of an abuse history in this understudied population.

References

Funding: AETNA Quality Care Research Fund.
Abstract

Research

Prevalence, Comorbidities, and Utilization of Services of Opioid Abusers in a Managed Care Plan

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Objective: To compare the prevalence, comorbidities, and utilization of an “opioid abuse” cohort of managed care patients with matched controls.

Methods: Patients with an opioid abuse diagnosis (ICD-9 codes 304.0x, 304.5x, 965.00, 965.02, 965.09) aged 12–64 years were identified in a large managed care population July 2000–April 2003. Controls without abuse diagnoses were matched 4:1 with opioid abusers on age, gender, and zip code. Prevalence rates using annual covered lives as the denominator were calculated. Comorbidities and medical service utilization were analyzed using descriptive statistics and prevalence ratios (PR) of any utilization. Subset analysis excluded poisoning diagnoses (965.00, 965.02, 965.09). Results: A total of 1,393 opioid abusers and 5,476 controls were identified. Prevalence of opioid abuse was 4.7, 5.4, and 6.7 per 10,000 members for 2000, 2001, and 2002, respectively. Opioid abuse was commonly a secondary diagnosis (28.4%). Opioid abusers were seen in outpatient (93.5%) or emergency departments (61.1%). Sixty-three percent of opioid abusers had at least one claim for an opioid prescription versus 16.3% of controls. Opioid abusers had significantly higher comorbidity prevalence rates of other substance abuse (PR = 21.6), hepatitis B/C (PR = 15.1), cirrhosis/other liver disease (PR = 11.1), psychiatric diagnoses (PR = 8.5), back disorders (PR = 7.7), skin infections (PR = 5.2), arthritis (PR = 4.4), and injury/trauma (PR = 3.2). Annual increases in prevalence, pharmacy utilization differences, and comorbidities persisted in subset analyses.

Conclusions: Although prevalence of opioid abuse rose from 2000 to 2002, opioid abuse is likely underestimated because only diagnosed patients were reviewed. Opioid abusers present with higher prevalence of opioid prescriptions and comorbidities compared with controls. To the extent that prescription opioids have a different abuse potential, payers and providers should balance adequate pain management with these drugs’ relative abuse potential. Future research should discern between prescription opioid and illicit opioid abusers, while also controlling for comorbidities.

Funding: Janssen Medical Affairs, L.L.C.

Psychiatric Disorders in Disabled Chronic Low Back Pain Workers’ Compensation Claimants: Utility of the Personality Assessment Inventory

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Chronic low back pain is often associated with psychiatric problems. It has been estimated that up to 90% of these patients may have psychological problems. Patients will complain of pain because this is more socially acceptable than having a mental disorder. The continuing pain complaint often results in excessive and unnecessary diagnostic and therapeutic interventions.

In this study we looked at 30 claimants with low back pain who were getting Workers’ Compensation benefits and had been off work for at least 1 year. We compared these with 30 outpatients who had psychological problems and who were being treated with psychotropics. In order to assess for possible psychopathology the Personality Assessment Inventory (PAI) was used. The PAI is a self-used objective inventory of adult personality designed to provide information on clinical variables. It contains 344 items, which comprise 22 nonoverlapping clinical scales, 4 validity scales, 11 clinical scales, 5 treatment scales, and 2 interpersonal scales.

We found that 81% of the Workers’ Compensation claimants had problems suggestive of major depressive disorder compared with 46% of outpatients. For somatization disorder it was 68% compared with 36%. For borderline personality disorder it was 54% compared with 23%. Generalized anxiety disorder was found in 45% of claimants and 23% of outpatients. Posttraumatic stress disorder 50% claimants, 20% outpatients. Polysubstance abuse was equal in prevalence. Symptoms suggestive of schizophrenia were found in 27% of disabled workers and 6% of outpatients. Somatoform pain disorder was in 18% of claimants and 6% of outpatients. All of these results were statistically significant. The PAI is suggested as a useful test for evaluation of psychological problems in Workers’ Compensation claimants.
Abstract

Research

VAS Score Correlates with Static Surface EMG Signal Intensity in Chronic Spine Pain

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There is currently no established objective measurement for pain intensity. Commonly used methods, including the visual analog scale (VAS), Numerical Rating Scale, Faces Scale, and Brief Pain Inventory, are subjective pain assessments. The search for an objective correlate for perceived pain intensity is imperative. A recent meta-analysis of surface-EMG (SEMG) research papers found that this procedure can demonstrate correlation of pain intensities in patients with low back pain compared with healthy persons, with sensitivities and specificities between 80% and 90%.

We analyzed 60 noncompensation-seeking patients who were diagnosed with chronic lumbar or cervical sprain/strain. VAS scores and static SEMG signals were obtained before and after a 2-month pain treatment program in a multidisciplinary pain practice. SEMG measurements were carried out using a Myovision 8,000 unit. Thirty (30) patients reported improvement in their pain symptoms and were classified as Responders. The mean VAS score on presentation was reported as 6, and this corresponded to a mean static SEMG signal amplitude of 542 millivolts. Two months post treatment, the reported mean VAS score was 1 in this group, and corresponded to a mean static SEMG signal of 180 millivolts. The second group of 30 patients were Non-Responders who did not have pain relief post therapy, with the treatment protocol being identical in the two patient groups. The mean initial VAS score for the Non-Responders was 6.6 with a mean SEMG signal of 884 millivolts. Two months post treatment the mean VAS for Non-Responders was 6.8 with a mean SEMG signal amplitude of 709 millivolts. We conclude that static SEMG signal intensity can serve as an objective measurement of pain.

References


Research

Effects of a Structured Opioid Therapy Program, Using Treatment Agreements, Urine Drug Screens, and Consultation, on Primary Care Practice

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Objective: Primary care practitioners (PCPs) care for most patients with chronic pain but are reluctant to prescribe opioids, fearing diversion, abuse, addiction, and regulatory scrutiny. Cost-effective strategies are needed to support PCPs’ pain management. We describe the results of a Nurse Practitioner (NP) and PharmD intervention, the Opioid Renewal Clinic (ORC), which supported PCP pain management in a high addiction risk population within an academic urban tertiary care VA hospital.

Methods: The program developed in three stages. 1) Information-gathering and design. Over 6 months, focus groups with PCPs identified needs for an effective program. 2) Program initiation providing: opioid treatment agreements (OTAs), random urine screens (RUDSs) (specific for individual opioids and other regulated meds), frequent visits, telephone contacts, patient education materials, DEA and state-specific guidelines for opioid prescribing, and consultation. All data were recorded electronically in the VA medical record. 3) Maintenance and evaluation. The program was monitored over 21 months by regular team meetings to review patients and protocols. We evaluated patient adherence, PCP rates of use of opioid treatment agreements and urine drug testing, and PCP satisfaction by questionnaire.

Results: A total of 335 patients were referred to ORC. Of 170 (50.7%) with documented aberrant behaviors, 58 (33%) adhered to the OTA, 54 (32%) self-discharged, 22 (13%) were referred for addiction treatment, 6 (4%) with consistently negative RUDSs were weaned from opioids, and 30 (18%) new patients continued monitoring. The 165 (49.3%) referred for complexity, including history of substance abuse, or need for...
opioid rotation or titration, with no documented aberrant drug-related behaviors, continued to adhere to the OTAs.

Providers: From 2001 to 2003, OTA use increased from 63 to 217 per year; RUDSs increased from 420 to 2,536 per year. PCPs were highly satisfied.

Conclusion: A NP/Pharm.D-run clinic can successfully support a primary care practice in managing opioids in complex chronic pain patients.

References

152 Research
Comparison of Cyclobenzaprine Alone Versus Cyclobenzaprine plus Ibuprofen in Patients with Acute Musculoskeletal Spasm and Pain

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Introduction: There are few published studies comparing the efficacy of a muscle relaxant given alone or in combination with nonsteroidal anti-inflammatory drugs (NSAIDs) for the treatment of acute musculoskeletal spasm and pain. This community-based trial tested the hypothesis that therapeutic outcomes obtained with the muscle relaxant cyclobenzaprine 5 mg tid (Flexeril 5 mg; Cyc5) given alone would be comparable to those obtained when this medication was given in combination with ibuprofen (Motrin-IB) 400 mg tid (Cyc5/Ibu400) or ibuprofen 800 mg tid (Cyc5/Ibu800) in patients with acute musculoskeletal spasm and pain.

Methods: Prospective, randomized, open-label, multicenter, 7-day study of Cyc5 versus Cyc5/Ibu400 or Cyc5/Ibu800 in patients (males and females, 18–65 years of age) with acute muscle spasm and pain of the back and/or neck of <15 days duration. Spasm and pain were assessed using an 11-point (0–10) patient-rated numerical scale collected via an Interactive Voice Recognition System after 3 and 7 days of therapy.

Results: Significant changes from baseline pain and spasm scores were detected after 3 and 7 days of therapy in all three treatment groups (P < 0.001; Cyc5, N = 288; Cyc5/Ibu400, N = 286; Cyc5/Ibu800, N = 293). Spasm score changes: Cyc5: −35.2% (D3), −56.0% (D7); Cyc5/Ibu400: −35.5% (D3), −53.7% (D7); Cyc5/Ibu800: −33.3% (D3), −53.8% (D7). Pain score changes: Cyc5: −31.6% (D3), −51.3% (D7); Cyc5/Ibu400: −35.2% (D3), −55.0% (D7); Cyc5/Ibu800: −31.7% (D3), −49.7% (D7). Changes from baseline were significantly greater after 7 days than after 3 days of therapy for all three treatments (P < 0.001). No significant differences were detected among the three treatment groups. Patients seldom called to spontaneously report adverse events, regardless of treatment.

Conclusions: These results support the hypothesis that cyclobenzaprine 5 mg tid alone is comparable to cyclobenzaprine 5 mg tid plus ibuprofen (400 or 800 mg tid) in the treatment of acute muscle spasm and pain.

References

Funding: McNeil Consumer & Specialty Pharmaceuticals.

154 Research
Prevalence and Characteristics of Breakthrough Pain in Noncancer Patients with Chronic Neuropathic Pain

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A survey conducted to evaluate the prevalence and characteristics of breakthrough pain (BTP) in patients with chronic noncancer pain identified 48 patients (63% women, 38% men) with primary neuropathic pain diagnoses and controlled baseline pain (T moderate intensity). Pain diagnoses included: neuropathy (other) in 44%, complex regional pain syndrome in 35%, peripheral neuropathy in 10%, postherpetic neuralgia in 4%, diabetic neuropathy in 2%, and central pain in 2%. Pain had been present for a median of 6 years (range 1 month to 55 years). Medications being used included: any opioid in 94%, sustained-release opioids in 67%, methadone in 15%, short acting opioids in 79%, nonsteroidal anti-inflammatory agents in 31%, antidepressants in 58%, and anticonvulsants in 56%. Each patient's pain was characterized by a phone interview using a BTP pain assessment algorithm originally designed for cancer patients [1]. Seventy-nine percent of these patients (38/48) reported temporary flares of severe or excruciating pain (i.e., BTP). Forty-five different types of BTP were described by 38 patients. The median number of episodes per day was 1.5 (range <1 to 12). Median time to maximum intensity was 10 minutes (range 0.2 to 180 minutes) with 49% of the pains reaching maximum intensity within 5 minutes. Median duration of the pains was 60 minutes (range 5 to 720 minutes). Patients could identify a precipitant for 60% of the pains and 89% of the precipitants were activity related. The onset of BTP could never be predicted for 49% of the pains and could only sometimes be predicted for 27% of the pains. These results suggest that BTP is common in noncancer patients with chronic neuropathic pain, often has a rapid onset (from baseline to peak intensity), has a relatively short duration, and is frequently difficult to predict, similar to BTP in cancer patients.

Reference

Funding: Cephalon, Inc., and Sagemed, Inc.

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The prevalence and characteristics of breakthrough pain (BTP) were assessed in 121 back pain patients (59% women, 41% men) identified in a survey of chronic noncancer pain patients with controlled baseline pain (<T moderate intensity). Pain had been present for a median of 6 years (range 0.5–40 years). The underlying pain pathophysiology was felt to be nociceptive in 55%, neuropathic in 5%, and mixed in 40%. Medications being used included: any opioid in 82%, sustained-release opioids in 70%, methadone in 18%, short acting opioids in 78%, nonsteroidal anti-inflammatory agents in 28%, antidepressants in 49%, and anticonvulsants in 33%. Phone interviews were used to characterized each patient's pain using a BTP pain assessment algorithm originally designed for cancer patients [1]. Seventy-three percent of these patients (88/121) reported temporary flares of severe or excruciating pain (i.e., BTP). Ninety-four different types of BTP were described by 88 patients. The median number of episodes per day was 2 (range <1 to 12). Median time to maximum intensity was 10 minutes (range 1 to 120 minutes) with 48% of the pains reaching maximum intensity within 5 minutes. Median duration of the pains was 50 minutes (range 1 to 480 minutes). Patients could identify a precipitant for 77% of the pains and most (96%) of the precipitants were activity related. The onset of BTP could never be predicted for 46% of the pains and could only sometimes be predicted for 24% of the pains. These results suggest that noncancer patients with chronic back pain commonly experience BTP, which often has a rapid onset (from baseline to peak intensity), a relatively short duration, and is frequently difficult to predict. These findings are similar to what has been reported for BTP in cancer patients.

Reference

Funding: Cephalon, Inc., and Sagemed, Inc.
Abstract

Characterization of Long-Term Intrathecal Ziconotide Use for Patients with Severe Chronic Pain Following Initial Fast Titration

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Introduction: Ziconotide (PRIALT®) is a novel nonopioid analgesic that is administered intrathecally and titrated to an effective dose for the management of severe chronic pain. To assess whether ziconotide-treated patients would reach stable dose periods during long-term therapy, we analyzed patients from two double-blind placebo-controlled trials with open-label extensions in severe chronic pain who achieved stable dosing for at least 90 days.

Materials and Methods: Characterization included the time necessary to achieve an initial stable dose, dose of ziconotide during the period of stability, and duration of stable dosing. Additionally, Visual Analog Scale of Pain Intensity (VASPI) scores at baseline, end of titration, and first recorded VASPI score during time of dose stability are reported. A total of 27 patients received ziconotide for at least 365 days utilizing initial fast titration. Patients who achieved a stable dose (constant for >90 days) were included in this characterization (N = 24). The median time to dosing stability was 196.5 days (range 4–869 days), the median dose was 0.34 mcg/hour (range 0.09–4.58 mcg/hour) and the median duration of stable dosing was 131.5 days (range 90–704 days).

Results: Clinically significant reductions in mean VASPI scores were observed from baseline (81.1, SD 13.3) to end of titration (29.6, SD 26.6) and first recorded VASPI during the stable dosing period (49.8, SD 29.9). Safety data for the patients in this characterization are being analyzed.

Conclusion: Fast titration schedules led to substantial improvements in VASPI scores and a period of stable dosing for the majority of patients who received long-term ziconotide therapy for chronic severe pain. It will be of interest to determine how the reduction in severe pain achieved with ziconotide translates to functional improvement.

Funding: Elan Pharmaceuticals.

Characterization of Long-Term Intrathecal Ziconotide Use for Patients with Severe Chronic Pain Following Initial Slow Titration

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Introduction: The novel nonopioid analgesic ziconotide is administered intrathecally and titrated to an effective dose for the management of severe chronic pain. To assess whether ziconotide-treated patients would reach stable dose periods during long-term therapy following an initial slow titration period, we evaluated patients with severe chronic pain who received ziconotide in an open-label safety study.

Materials and Methods: Characterization included the time necessary to achieve an initial stable dose, dose of ziconotide during the period of stability, and duration of stable dosing. Additionally, Visual Analog Scale of Pain Intensity (VASPI) scores at baseline, end of titration, and first recorded VASPI score during time of dose stability are reported. A total of 119 patients received ziconotide for at least 365 days utilizing initial slow titration. This characterization included patients (N = 91) who achieved a stable dose of ziconotide (constant for at least 90 days). All 91 patients who achieved dose stability had a baseline VASPI score. However, only 89/91 and 49/91 had end of titration and dose stability period VASPI scores, respectively. In this study, VASPI scores were only required at baseline and at the end of titration visits.

Results: The median time to dosing stability was 279 days (range 4–1,290 days), the median dose was 0.24 mcg/hour (range 0.01–2.5 mcg/hour), and the median length of the dose stability was 141 days (range 90–916). Clinically significant reductions in mean VASPI scores were observed from baseline (71.9, SD 21.3) to end of titration (49.1, SD 29.0) and during dose stability (59.5, SD 27.9).

Conclusion: It was possible to utilize slow titration to achieve substantial reductions in VASPI scores. Also, a stable dose for at least 90 days was achieved in a majority of patients. Further research is needed to examine
Abstract

the relationship between relief of severe chronic pain with ziconotide and functional improvement.

Reference

Funding: Elan Pharmaceuticals.

Research

Effectiveness of Intrathecal Ziconotide in Multiple Pain Etiologies: A Meta-Analysis of Three Controlled Trials

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Introduction: Clinical trials have shown that the non-opioid analgesic ziconotide is useful in managing severe chronic pain, including nociceptive and neuropathic pain of malignant, and nonmalignant etiologies. Intrathecal (IT) ziconotide is administered by titrating to an effective dose. Here, Visual Analog Scale of Pain Intensity (VASPI) data (0 = no pain to 100 = worst pain) from three double-blind, placebo-controlled trials of 457 patients are presented.

Materials and Methods: Patients in these studies had severe chronic pain that was uncontrolled by multiple oral and IT medications. Pain was classified according to whether the pain was malignant or nonmalignant and according to pain etiology subgroups. The primary efficacy variable, mean percent improvement in VASPI from baseline to end of titration, was evaluated for all pain categories; for each pain category two-sided, two-sample t-test was used to evaluate statistical differences between ziconotide and placebo. Analyses were carried out in each combined subgroup with at least 20 subjects.

Results: In patients with nonmalignant pain (N = 402), the mean percent improvement in VASPI score was 22.9% in patients treated with ziconotide, compared with 7.8% in patients receiving placebo (P < 0.0001). In patients with malignant pain (N = 51), the mean percent improvement in VASPI score was 36.5% in patients treated with ziconotide, versus 8.6% in the placebo-treated group (P = 0.0230). Significant improvements in the mean percent improvement in VASPI scores were observed in patients with myelopathic (19.2% vs 0.1%), neuropathic (29.1% vs 8.9%), radiculopathic (43.7% vs 4.1%), and spinal pain (21.3% vs 6.8%). A trend toward improvement in patients treated with ziconotide compared with patients treated with placebo was observed in patients with bone pain. Data from various pain etiologies will be presented to explore the effect of ziconotide on VASPI scores.

Conclusion: These results indicate that ziconotide is effective in relieving both malignant and nonmalignant pain of multiple etiologies.

Reference

Funding: Elan Pharmaceuticals.

Research

Efficacy of Intrathecal Ziconotide for the Treatment of Severe Chronic Pain in Adults

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Introduction: Ziconotide is a nonopioid, N-type calcium channel blocker that inhibits neuronal calcium influx, thereby reducing neurotransmitter release at primary pain afferents. A double-blind, placebo-controlled, multicenter trial was conducted to assess the analgesic efficacy and safety of intrathecal (IT) ziconotide in patients with refractory, severe, chronic pain.

Materials and Methods: After weaning all IT medications and stabilizing on IT saline for 1 week, patients with a Visual Analog Scale of Pain Intensity (VASPI) score ≥50 mm were randomized to ziconotide or placebo. The blinded drugs were titrated over a 3-week period, with an initial dosage of 0.1 mcg/hour and a 0.35-mcg/hour final target dosage. Primary efficacy was measured by mean percent change of VASPI score from baseline to the end of titration. Satisfaction with treatment and pain relief were assessed with Clinical Global Impression (CGI) scales. Adverse events (AEs) were recorded throughout the study to monitor safety.

Results: A total of 112 ziconotide and 108 placebo patients were randomized; 92% of patients completed treatment. Mean VASPI was 80.7 mm at baseline for both groups. The blinded drugs were titrated over a 3-week period, with an initial dosage of 0.1 mcg/hour and a 0.35-mcg/hour final target dosage. Primary efficacy was measured by mean percent change of VASPI score from baseline to the end of titration. Satisfaction with treatment and pain relief were assessed with Clinical Global Impression (CGI) scales. Adverse events (AEs) were recorded throughout the study to monitor safety.

Results: A total of 112 ziconotide and 108 placebo patients were randomized; 92% of patients completed treatment. Mean VASPI was 80.7 mm at baseline for both groups. After 3 weeks, a mean 14.7% VASPI score reduction for ziconotide patients and 7.2% reduction for placebo patients was observed (P = 0.036). On the CGI scales, a significantly higher percentage of ziconotide (28.4%) than placebo patients (12.1%)
reported “a lot” or “complete” satisfaction with treatment \( (P = 0.0027) \) and “very good” or “excellent” pain control (11.9\% and 0.9\%, respectively; \( P = 0.0004 \)). The majority (84\%) of AEs were mild to moderate in severity; discontinuation because of AEs was 5.4\%, ziconotide; 4.6\%, placebo. The most frequently reported ziconotide-related AEs were dizziness (34.8\%), nausea (19.6\%), and confusion (14.3\%).

Conclusions: Ziconotide efficacy was demonstrated in treatment-refractory patients showing significantly improved pain levels, patient satisfaction, and overall pain control. Ziconotide was well tolerated with primarily mild to moderate AEs and relatively low discontinuation rates.

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161
Research

Effective Titration with Oxymorphone Extended Release for Opioid-Naive Patients with Moderate to Severe Pain from Osteoarthritis

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Introduction: Elderly patients using opioids for the first time are particularly predisposed to opioid-related adverse events (AEs). Opioid-related AEs may be ameliorated by a low starting dose followed by cautious titration. We evaluated the safety and tolerability of oxymorphone extended-release (ER) in opioid-naive patients experiencing chronic, moderate-to-severe osteoarthritis (OA)-related pain by carefully titrating from a low starting dose (5 mg) to an effective stable dose.

Materials and Methods: This open-label study was performed in outpatients 18 years of age or older with a baseline OA-related pain intensity score of 40 or greater on a 100-mm visual analog scale, and a pain rating of moderate or severe. Patients received oxymorphone ER 5 mg q12h for 2 days followed by titration over a period of 31 days or less to a stable dose of oxymorphone ER that reduced pain to 4 or less on a 0–10 scale of increasing pain.

Results: Sixty-one treated patients with a mean age (plus or minus standard deviation) of 60 (plus or minus 10.9) years had a mean average pain at entry of 6.2/10. Forty-three patients (70.5\%) were successfully titrated to an effective stable daily dose (mean pain 4/10 or less, mean daily dose = 24.4 mg (range, 5–70 mg)). Most stabilized patients (56\%, 24/43) required 2 weeks or less of titration. Three patients (4.9\%) failed to meet titration criteria, 1 (1.6\%) withdrew consent, 1 (1.6\%) violated protocol, and 13 (21.3\%) discontinue from AEs. AEs were those typical of opioid treatment; the most common AE was constipation (30.0\% of patients), and the rate of vomiting was low (3.3\%).

Conclusions: The majority of opioid-naive patients with chronic, moderate-to-severe OA-related pain tolerate oxymorphone ER well when therapy is initiated at 5 mg q12h for 2 days, followed by gradual dose titration.

References

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162
Research

A Comparison of the Pharmacokinetics of Kadian® and Avinza® 30 mg in Healthy Opioid-Naive Fed Subjects: A Head-to-Head, Single-Dose Trial

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Introduction: KADIAN® and AVINZA® are encapsulated pellet formulations of sustained-release morphine sulfate indicated for treatment of moderate-to-severe chronic pain. KADIAN, indicated for once-daily or q12h dosing, has no immediate-release (IR) component. AVINZA, indicated for once-daily dosing, has 10% of its pellets in an IR formulation. This study compared the pharmacokinetics of morphine and its main metabolites in fed patients receiving KADIAN and AVINZA and the adverse event (AE) profiles of both formulations.

Materials and Methods: An independent CRO performed clinical and analytical portions of this randomized, double-blind, crossover study. Healthy, opioid-naive subjects (N = 36) and alternates (N = 4) were randomized to receive either KADIAN or AVINZA 30 mg after a standard meal. Plasma samples were obtained hourly for the first 12 hours and at 14, 16, 20, 24, 30, 36, 48, and 60 hours. AEs were documented.

Results: Tmax was significantly earlier for AVINZA than for KADIAN (6.7 vs 12.9 hours); however, KADIAN provided slightly higher mean plasma mor-
phine levels than AVINZA at each time point 8–60 hours after a single dose. Cmax and AUC were similar, and demonstrated bioequivalence based on FDA guidelines [1]. Data on +1/2 (KADIAN, 14.5 hours; AVINZA, 15.6 hours) demonstrated that both products support once-daily dosing. Data on four patients who took AVINZA were replaced with data from the alternates due to vomiting episodes 10–13 hours post dose. AE differences between the products were not statistically significant.

Conclusions: The +1/2 data demonstrated that both products support once-daily dosing. While AVINZA demonstrated an earlier Tmax, KADIAN provided plasma morphine levels statistically indistinguishable from AVINZA throughout most of the 60-hour sampling period. Additional clinical trials are needed to determine whether the formulation differences produce clinically relevant differences when used for long-term treatment of chronic pain.

Reference
1 Available at: http://www.fda.gov/cder/guidance/3616fnl.htm.

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Research
Lidocaine Patch 5% Improves Sleep, Quality of Life, and Pain Intensity in Geriatric Patients with Neuropathic Pain: A Pooled Analysis
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Persistent, debilitating pain can lead to decreased productivity, social withdrawal, and depression. Inadequate pain relief can impair a patient’s ability to obtain restful sleep, as well as adversely affect other quality-of-life (QOL) domains. The objective of this post hoc analysis was to assess the impact of treatment with the lidocaine patch 5% on pain interference with sleep and other domains of QOL in an elderly population of neuropathic pain (NP) patients. Data were pooled from three separate, open-label, nonrandomized, prospective, 2- to 3-week clinical trials. Patients ≥65 years of age who reported average daily pain intensity >4 (on a 0–10 scale) prior to study entry were included in the analysis. Outcome measures included treatment effect at 2 or 3 weeks on pain interference with sleep, general activity, mood, walking ability, normal work, relations with others, enjoyment of life, and on pain intensity as measured by the Brief Pain Inventory (BPI). In 286 geriatric patients (mean age, 76.9 years) with NP, 2 to 3 weeks of treatment with lidocaine patch 5% significantly reduced the degree to which pain interfered with sleep, and all other domains measured by question 9 of the BPI (P < 0.001). Lidocaine patch 5% also significantly reduced pain intensity and increased pain relief (P < 0.001). More than half (N = 144, 50.3%) experienced a ≥30% decrease in average daily pain from baseline. Treatment-related adverse events (AEs) were observed in 49 patients (17.1%), and were primarily mild-to-moderate in severity. The most commonly reported treatment-related AEs were dermal in nature (i.e., rash, N = 13 [4.5%]). In a geriatric population with NP, lidocaine patch 5% significantly reduced pain interference with sleep and other QOL domains; while providing a clinically meaningful reduction in pain intensity with low risk of systemic toxicity in an at-risk population.

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