Opioid Risk Stratification: Identifying The Central Pain Phenotype

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Subspecialty Certified Pain Medicine
Paul Coelho, MD: No financial relationships to disclose. I will not be discussing any off-label use.
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Rationale

Primary care clinicians report having concerns about opioid pain medication misuse, find managing patients with chronic pain stressful, express concern about patient addiction, and report insufficient training in prescribing opioids (26). Across specialties, physicians believe that opioid pain medication can be effective in controlling pain, that addiction is a common consequence of prolonged use, and that long-term opioid therapy often is overprescribed for patients with chronic noncancer pain (27). These attitudes and beliefs, combined with increasing trends in opioid-related overdose, underscore the need for better clinician guidance on opioid prescribing. Clinical practice guidelines focused on prescribing can improve clinician knowledge, change prescribing practices (28), and ultimately benefit patient health.

Professional organizations, states, and federal agencies (e.g., the American Pain Society/American Academy of Pain Medicine, 2009; the Washington Agency Medical Directors Group, 2015; and the U.S. Department of Veterans Affairs/Department of Defense, 2010) have developed guidelines for opioid prescribing (29–31). Existing guidelines share some common elements, including dosing thresholds, cautious titration, and risk mitigation strategies such as using risk assessment tools, treatment agreements, and urine drug testing. However, there is considerable variability in the specific recommendations (e.g., range of dosing thresholds of 90 MME/day to 200 MME/day), audience (e.g., primary care clinicians versus specialists), use of evidence (e.g., systematic review, grading of evidence and recommendations, and role of expert opinion), and rigor of methods for addressing conflict of interest (32). Most guidelines, especially those that are not based on evidence from scientific studies published in 2010 or later, also do not reflect the most recent scientific evidence about risks related to opioid dosage.

This CDC guideline offers clarity on recommendations based on the most recent scientific evidence, informed by expert opinion and stakeholder and public input. Scientific research has identified high-risk prescribing practices that have contributed to the overdose epidemic (e.g., high-dose prescribing, overlapping opioid and benzodiazepine prescriptions, and extended-release/long-acting [ER/LA] opioids for acute pain) (24,33,34). Using guidelines to address problematic prescribing has the potential to optimize care and improve patient safety based on evidence-based practice (28), as well as reverse the cycle of opioid pain medication misuse that contributes to the opioid overdose epidemic.

https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm
Traditional Opioid Risk Stratification Instruments

1. **ORT**: Opioid Risk Tool
2. **DIRE**: Diagnosis, Intractability, Risk, Efficacy
3. **SOAPP-R**: Screener & Opioid Risk Assessment for Patients in Pain
4. **SISAP**: Screening Instrument for Substance Abuse Potential

http://www.opioidrisk.com/node/774
“Unfortunately the predictive utility for predicting opioid misuse was inconsistent and poor for the ORT, SOAPP-R, and SOAPP version 1. Usually the instruments performed better in the initial study and more poorly when someone else tried to validate it. A couple of recent studies have also looked at a new instrument called the Brief Risk Instrument which also did not perform very well. The DIRE and the SISAP have not been evaluated in terms of predictive utility (at least not in studies that met our inclusion criteria).”

Roger Chou
Identifying Musculoskeletal Pain Phenotypes
# MSK Pain Phenotypes

<table>
<thead>
<tr>
<th></th>
<th>Nociceptive</th>
<th>Neuropathic</th>
<th>Central</th>
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<tbody>
<tr>
<td>Primarily due to</td>
<td>Primarily due to inflammation or mechanical damage in periphery.</td>
<td>Damage or entrapment of peripheral nerves.</td>
<td>Primarily due to a central disturbance in pain processing.</td>
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<tr>
<td>inflammation or</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>mechanical damage in</td>
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<td>periphery.</td>
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<tr>
<td>NSAID, Opioid</td>
<td>NSAID, Opioid Responds to both peripheral and central pharmacological therapy.</td>
<td></td>
<td>Responsive to Tricyclic Compounds. <strong>Opioid effectiveness questioned</strong></td>
</tr>
<tr>
<td>Responsive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responds to procedures</td>
<td>Responds to both peripheral and central pharmacological therapy.</td>
<td>Does not respond to procedures</td>
<td>Does not respond to procedures</td>
</tr>
<tr>
<td>minor.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examples: Osteoarthritis,</td>
<td>Examples: Diabetic neuropathy, Post-herpetic neuralgia.</td>
<td></td>
<td>Examples: FMS, IBS, Tension HA, idiopathic LBP</td>
</tr>
<tr>
<td>Rheumatoid Arthritis,</td>
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<tr>
<td>Cancer Pain</td>
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</table>

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1829161/
Central Pain (CS) Is Not Opioid Responsive

American Pain Society
American Academy of Pain Medicine
American Academy of Neurology
European League Against Rheumatism
Canadian Pain Society
Canadian Rheumatology Association
British Pain Society

# Treatment of CS/FMS

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Evidence Level</th>
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<tbody>
<tr>
<td>Pt Education</td>
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<tr>
<td>Graded Exercise</td>
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<tr>
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<td>CAM</td>
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<td>SNRI’s</td>
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<td>Opioids</td>
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Prescribers Are Poor at Diagnosing FMS/CS

23% Sensitivity

Author information


Functional somatic syndromes: sensitivities and specificities of self-reports of physician diagnosis.
Warren JW¹, Clauw DJ.

Abstract

OBJECTIVE: Functional somatic syndromes have no laboratory or pathologic abnormalities and so are diagnosed by symptom-based case definitions. However, many studies, including recent ones, have used self-reports of physician diagnosis rather than the case definitions. Our objective was to determine the sensitivities and specificities of self-report of physician diagnosis for chronic fatigue syndrome (CFS), fibromyalgia (FM), irritable bowel syndrome (IBS), panic disorder, and migraine.

METHODS: Each of 312 female patients with incident interstitial cystitis/bladder pain syndrome and matched population-based controls were queried on self-report of physician diagnosis and separately on established case definitions for each of these syndromes.

RESULTS: Using the symptom-based case definitions as standards, we found that self-report of physician diagnosis did not identify 90% of the controls who had CFS, 77% who had FM, 69% who had IBS, 43% who had panic disorder, and 23% who had migraine. In addition, it missed most individuals with multiple syndromes. Findings in one cohort (controls) were confirmed in another (patients with interstitial cystitis/bladder pain syndrome).

CONCLUSIONS: Self-report of physician diagnosis did not identify most of the three most venerable functional somatic syndromes, IBS, FM, and, especially, CFS; nor did it identify substantial minorities of individuals with panic disorder and migraine. Self-report of physician diagnosis was particularly poor in recognizing persons with multiple syndromes. The insensitivity of this diagnostic test has effects on not only prevalence and incidence estimates but also correlates, comorbidities, and case recruitment. To reveal individuals with these syndromes, singly or together, queries of symptoms, not diagnoses, are necessary.

Prescribers Are Poor at Diagnosing FMS/CS

27% Specificity


Abstract

OBJECTIVES: Although fibromyalgia criteria have been in effect for decades, little is known about how the fibromyalgia diagnosis is applied and understood by clinicians and patients. We used the National Health Interview Survey (NHIS) to determine the prevalence of self-reported clinician diagnosed fibromyalgia and then compared demographics, symptoms, disability and medical utilization measures of persons with a clinical diagnosis of fibromyalgia that did not meet diagnostic criteria (false-positive or prior [F/P] fibromyalgia) to persons with and without criteria-positive fibromyalgia.

METHODS: The National Health Interview Survey (NHIS) collected information about both clinical diagnosis and symptoms of fibromyalgia that was appropriately weighted to represent 225,726,257 US adults. Surrogate NHIS diagnostic criteria for fibromyalgia were developed based on the level of polysymptomatic distress (PSD) as characterized in the 2011 modified American College of Rheumatology criteria (ACR) for fibromyalgia. Persons with F/P fibromyalgia were compared with persons who do not have fibromyalgia and those meeting surrogate NHIS fibromyalgia criteria.

RESULTS: Of the 1.78% of persons reporting a clinical diagnosis, 73.5% did not meet NHIS fibromyalgia criteria. The prevalence of F/P fibromyalgia is 1.3%. F/P fibromyalgia is associated with a mild degree of polysymptomatic distress (NHIS PSD score 6.2) and characterized by frequent but not widespread pain and insomnia. Measures of work disability and medical utilization in F/P fibromyalgia were equal to that seen with NHIS criteria positive fibromyalgia and were 6-7x greater in F/P fibromyalgia than in non-fibromyalgia persons. F/P fibromyalgia was best predicted by being female (Odds Ratio [OR] 8.81), married (OR 3.27), and white (OR 1.96). In contrast, being a white, married woman was only modestly predictive of NHIS (criteria positive) fibromyalgia (OR 2.1).

CONCLUSIONS: The majority of clinically diagnosed fibromyalgia cases in the US do not reach levels of severity necessary and sufficient for diagnosis. The clinical diagnosis of fibromyalgia is disproportionately dependent on demographic and social factors rather than the symptoms themselves. Diagnostic criteria for fibromyalgia appear to be used as a vague guide by clinicians and patients, and allow for substantial diagnostic expansion of fibromyalgia.

Survey of physician experiences and perceptions about the diagnosis and treatment of fibromyalgia.
Perrot S, Choy E, Peters D, Ginovker A, Kramer E.

N = 1622

Abstract

BACKGROUND: Fibromyalgia (FM) is a condition characterized by widespread pain and is estimated to affect 0.5-5% of the general population. Historically, it has been classified as a rheumatologic disorder, but patients consult physicians from a variety of specialties in seeking diagnosis and ultimately treatment. Patients report considerable delay in receiving a diagnosis after initial presentation, suggesting diagnosis and management of FM might be a challenge to physicians.

METHODS: A questionnaire survey of 1622 physicians in six European countries, Mexico and South Korea was conducted. Specialties surveyed included primary care physicians (PCPs; n=809) and equal numbers of rheumatologists, neurologists, psychiatrists and pain specialists.

RESULTS: The sample included experienced doctors, with an expected clinical caseload for their specialty. Most (>80%) had seen a patient with FM in the last 2 years. Overall, 53% of physicians reported difficulty with diagnosing FM, 54% reported their training in FM was inadequate, and 32% considered themselves not knowledgeable about FM. Awareness of American College of Rheumatology classification criteria ranged from 32% for psychiatrists to 83% for rheumatologists. Sixty-four percent agreed patients found it difficult to communicate FM symptoms, and 79% said they needed to spend more time to identify FM. Thirty-eight percent were not confident in recognizing the symptoms of FM, and 48% were not confident in differentiating FM from conditions with similar symptoms. Thirty-seven percent were not confident developing an FM treatment plan, and 37% were not confident managing FM patients long-term. In general, rheumatologists reported least difficulties/greatest confidence, and PCPs and psychiatrists reported greatest difficulties/least confidence.

CONCLUSIONS: Diagnosis and managing FM is challenging for physicians, especially PCPs and psychiatrists, but other specialties, including rheumatologists, also express difficulties. Improved training in FM and initiatives to improve patient-doctor communication are needed and may help the management of this condition.

http://www.ncbi.nlm.nih.gov/pubmed/23051101
Improving the Dx of FMS

Sensitivity of 96.6%  Specificity of 91.8%

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FMS/CS Patients Endorse More Pain


Association of concomitant fibromyalgia with worse disease activity score in 28 joints, health assessment questionnaire, and short form 36 scores in patients with rheumatoid arthritis.

Ranzolin A, Brenol JC, Bredameier M, Guarieti J, Rizzatti M, Feldman D, Xavier RM.

N = 270

Abstract

OBJECTIVE: To study the association of the presence of fibromyalgia (FM) with the Disease Activity Score in 28 joints (DAS28), the Health Assessment Questionnaire (HAQ), and the Medical Outcomes Study Short Form 36 (SF-36) health survey in patients with rheumatoid arthritis (RA).

METHODS: A total of 270 outpatients with RA were enrolled in a prospective cross-sectional study. The patients underwent clinical evaluation and application of the HAQ and SF-36 questionnaires. Disease activity was evaluated using the DAS28 score. FM and RA diagnoses were made according to American College of Rheumatology criteria.

RESULTS: The overall prevalence of FM was 13.4%. This group of patients had a higher prevalence of female sex, older mean age, higher functional class, and longer morning stiffness than patients with only RA. Mean +/- SD DAS28 scores were significantly higher in patients with RA and FM (5.36 +/- 0.99) than in patients with RA only (4.03 +/- 1.39; P < 0.001). In a multivariable linear regression analysis, FM was an important predictor of the DAS28 score, even after adjusting for the erythrocyte sedimentation rate, number of swollen joints, functional class, number of disease-modifying antirheumatic drugs currently in use, current dose of steroids, and articular erosions. HAQ and SF-36 scores were also worse in patients with RA and associated FM.

CONCLUSION: FM is related to worse scores on the DAS28, HAQ, and SF-36 in patients with RA. The presence of FM may have major implications in the interpretation of the DAS28 score because it is related to higher scores independently of objective evidence of RA activity.

The role of catastrophizing in the pain and depression of women with fibromyalgia syndrome.

Hassett AL, Cone JD, Patella SJ, Sigal LH.

Abstract

OBJECTIVE: Although 2 recent studies have found associations between catastrophizing and poor medical outcomes in patients with fibromyalgia syndrome (FMS), neither assessed these findings in comparison with a similar group of patients with chronic pain. Our study examined the complex relationships between depression, catastrophizing, and the multidimensional aspects of pain in women with FMS and compared these relationships with those in women with rheumatoid arthritis (RA).

METHODS: Sixty-four FMS patients and 30 RA patients completed the Coping Strategies Questionnaire (CSQ), the Beck Depression Inventory II (BDI-II), and the McGill Pain Questionnaire.

RESULTS: Compared with subjects with RA, FMS subjects scored significantly higher on the catastrophizing subscale of the CSQ. FMS patients also earned higher scores on overall depression and on the cognitive subscale of the BDI-II. Furthermore, the relationship between catastrophizing and depression was significant in the FMS group only. Regression analyses revealed that in FMS, catastrophizing as a measure of coping predicted patients' perception of pain better than demographic variables such as age, duration of illness, and education.

CONCLUSION: Cognitive factors, such as catastrophizing and depressive self-statements, have a more pronounced role in the self-reported pain of patients with FMS than in patients with RA. Clinically, this indicates that treating pain and depression in FMS by adding cognitive therapy and coping skills components to a comprehensive treatment program may improve the outcomes obtained with pharmacologic interventions.

The impact of concomitant fibromyalgia on visual analogue scales of pain, fatigue and function in patients with various rheumatic disorders.

Levy O1, Segal R2, Maslakov I3, Markov A3, Tishler M3, Amit-Vazina M3.

OBJECTIVES: To evaluate the impact of concomitant fibromyalgia on the rating of pain, fatigue, and dysfunction, in patients with various rheumatic disorders.

METHODS: A cross-sectional study was carried out in a hospital-based rheumatology unit. Standard clinical and laboratory data were obtained and all patients completed questionnaires on pain, fatigue, and daily function. The rate of concomitant fibromyalgia was estimated using the 1990 American College of Rheumatology (ACR) classification criteria for fibromyalgia and the analysis concentrated on visual analogue scales (VAS).

RESULTS: Six hundred and eighteen visits of 383 patients with inflammatory as well as non-inflammatory rheumatic disorders were analyzed. Concomitant fibromyalgia was noted in 74 patients (23% of the cohort). Patients with rheumatic diseases and concomitant fibromyalgia had significantly higher mean VAS scores for pain, fatigue, and function (79±17, 81±18, 80±18, respectively) as compared to patients who had no features of fibromyalgia (47±28, 50±29, 44±30 respectively; all p values <0.001). The scores reported by patients with rheumatic diseases and concomitant fibromyalgia were similar to the scores obtained from patients with primary FM.

CONCLUSIONS: Concomitant FM is common both among patients with inflammatory and patients with non-inflammatory rheumatic disorders. Concomitant FM has a remarkable impact on the severity of symptoms and, moreover, patients with concomitant FM exhibit extreme and significantly distinct levels of pain and fatigue which is as severe as that reported by patients with primary FM. It seems that fibromyalgic features dominate and become the main cause of morbidity in rheumatological patients with concomitant FM.

Evaluation of the impact of fibromyalgia in disease activity and treatment effect in spondyloarthritis.

Bello N1,2, Etcheto A3,4, Béal C5, Dougados M5,7, Molto A8,9.

Abstract

BACKGROUND: Fibromyalgia (FM) can coexist with Spondyloarthritis (SpA) leading to diagnostic and treatment dilemmas, especially in the presence of enthesitis. With this study we aimed to estimate the prevalence of FM in SpA and to compare the clinical/disease features and TNF inhibitors (TNFi) in patients with/without FM.

METHOD: FM was defined by a score = > 5/6 of the Fibromyalgia Rapid Screening Tool (FiRST). SpA patients (according to the rheumatologist) and consecutively consulting in the day care hospital but also in the outpatient clinic at the rheumatology department of a tertiary care university hospital were included. Demographics, disease characteristics, activity and severity and TNFi treatment were compared in patients with and without FM; retention rate of the first TNFi and associated factors were explored (Kaplan Meier and Cox regression).

RESULTS: Of the 196 enrolled SpA patients, 42 (21.4 %) were positively screened for FM. No statistically significant differences in the prevalence of FM were found with regard to the fulfillment of the ASAS criteria for peripheral/axial SpA, nor with regard to the fulfillment of the imaging vs. clinical arm of the ASAS criteria. However, patients with coexisting FM presented significantly with more enthesitis, higher disease activity (BASDAI and VAS) and poorer function scores (BASFI). No differences were found with regard to the initiation of TNFi treatment (79.0 % vs. 70.0 %, respectively), but the retention rate of the first TNFi after 2 years was shorter in the group of patients with FM (28.1 % (95 % CI 12.5-44.0) vs. 41.7 % (95 % CI 32.2-51.3), p = 0.01).

CONCLUSION: This study confirms that coexistent FM in SpA might impact the patient-reported outcome indices for disease activity and function, and the retention rate of TNFi treatment.

N = 196 SA Pt’s, 42 w/FMS, FMS +/- VAS (5.9/3.0)

The Effect of the Presence of Fibromyalgia on Common Clinical Disease Activity Indices in Patients with Psoriatic Arthritis: A Cross-sectional Study.

Brikman S1, Furer V1, Wollman J1, Borok S1, Matz H1, Polachek A1, Elalouf O1, Sharabi A1, Kaufman I1, Paran D1, Elsayam O1.

Abstract

OBJECTIVE: To study the effect of the presence of fibromyalgia (FM) on common clinical disease activity indices in patients with psoriatic arthritis (PsA).

METHODS: Seventy-three consecutive outpatients with PsA (mean age 51.7 yrs; 42 females, 57.5%) were enrolled in a prospective cross-sectional study. FM was determined according to American College of Rheumatism criteria (2010 and 1990). All patients underwent clinical evaluation of disease activity and completed the Health Assessment Questionnaire (HAQ), the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), the Dermatology Life Quality Index, and the Leeds Enthesitis Index (LEI). Disease activity was evaluated using the Composite Psoriatic Disease Activity Index (CPDAI), minimal disease activity (MDA), and the Disease Activity Index for Psoriatic Arthritis (DAPSA) scores.

RESULTS: The overall prevalence of FM was 17.8% (13 patients), and all but 1 were women (12 patients, 92.3%, p = 0.005). CPDAI and DAPSA scores were significantly higher in patients with coexisting PsA and FM (9.23 ± 1.92 and 27.53 ± 19.23, respectively) than in patients with PsA only (4.26 ± 3.14 and 12.82 ± 12.71, respectively; p < 0.001 and p = 0.003). None of the patients with FM + PsA met the criteria for MDA, whereas 26 PsA-only patients did (43.3%, p = 0.003). HAQ, BASDAI, and LEI scores were significantly worse in patients with PsA and associated FM.

CONCLUSION: Coexisting FM is related to worse scores on all tested measures in patients with PsA. Its influence should be taken into consideration in the treatment algorithm to avoid unnecessary upgrading of treatment.

What Determines Whether a Pain is Rated as Mild, Moderate, or Severe? The Importance of Pain Beliefs and Pain Interference.

Jensen MP¹, Tomé-Pires C, de la Vega R, Galán S, Solé E, Miró J.

Abstract

Reliable and valid measures of pain intensity are needed to accurately evaluate the efficacy of pain treatments. Perhaps with the exception of FACES pain intensity scales, which are thought to reflect both pain intensity and pain affect, the other most commonly used pain intensity scales - Numerical Rating Scales (NRSs), Visual Analogue Scales, and Verbal Rating Scales (VRSs) - are all thought to reflect primarily pain intensity or the magnitude of felt pain. However, to our knowledge, this assumption has not been directly tested for VRSs. Here we evaluated whether VRS pain severity ratings are influenced by pain beliefs, catastrophizing, or pain interference over and above any effects of pain intensity, as measured by a NRS, in four samples of individuals with physical disabilities and chronic pain. As hypothesized, and while controlling for pain intensity as measured by a NRS, higher scores on factors representing pain interference with function, pain catastrophizing, and a number of pain-related beliefs were all associated with a tendency for the study participants to rate their pain as more severe on a VRS. These findings indicate VRSs of pain severity cannot necessarily be assumed to measure only pain intensity; they may also reflect patient perceptions about pain interference and beliefs about their pain. Clinicians and researchers should take these findings into account when selecting measures and when interpreting the results of studies using VRSs as outcome measures.

FMS/CS Pt’s Often Have The Highest Opioid Dose

Characteristics of chronic pain patients who take opioids and persistently report high pain intensity.

Wasserman RA¹, Brummett CM, Goesling J, Tsodikov A, Hasset AL.

Abstract

BACKGROUND AND OBJECTIVES: The use of self-report questionnaires to detect characteristics of altered central pain processing, as seen in centralized pain disorders such as fibromyalgia, allow for the epidemiological studies of pain patients. Here, we assessed the relationship between reporting high levels of pain while taking opioids and the presence of characteristics associated with centralized pain.

METHODS: We evaluated 582 patients taking opioid medications using validated measures of clinical pain, neuropathic pain symptoms, mood, and functioning. A multivariate linear regression model was used to assess the association between levels of pain while taking opioids and presenting with characteristics consistent with having centralized pain.

RESULTS: We found that 49% of patients taking opioids continued to report severe pain (≥ 7/10). In multivariate analysis, factors associated with having higher levels of pain in opioid users included higher fibromyalgia survey scores (P = 0.001), more neuropathic pain symptoms (P < 0.001), and higher levels of depression (P = 0.002). Although only 3.2% were given a primary diagnosis of fibromyalgia by their physician, 40.8% met American College of Rheumatology survey criteria for fibromyalgia.

CONCLUSIONS: Our findings suggest that patients with persistently high pain scores despite opioid therapy are more likely than those with lower levels of pain to present with characteristics associated with having centralized pain. This study cannot determine whether these characteristics were present before (fibromyalgia-like patient) or after the initiation of opioids (opioid-induced hyperalgesia). Regardless, patients with a centralized pain phenotype are thought to be less responsive to opioids and may merit alternative approaches.


Variation in Opioid Rx’ing For FMS 2007-2009

Mean Age = 44.7

(A) Prevalence of fibromyalgia. (B) Patients with fibromyalgia receiving chronic opioid therapy. Patients were classified by using International Classification of Diseases, Ninth Revision, Clinical Modification code 729.1.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4346177/
Evaluating Guideline-recommended Pain Medication Use Among Patients with Newly Diagnosed Fibromyalgia.

Halpern R¹, Shah SN², Cappelleri JC³, Masters ET², Clair A².

Abstract

OBJECTIVES: To compare pain medication treatment changes across cohorts of newly diagnosed patients with fibromyalgia (FM) treated with guideline-recommended medications or opioids.

METHODS AND DESIGN: Retrospective claims data analysis examined adult commercial health plan members newly diagnosed with FM (initial diagnosis = index date) from January 2008 to February 2012. Patients had 6-month pre-index and 12-month post-index periods and received pain medication within 6 months postindex; cohorts were based on the first postindex medication. Guideline-recommended medication cohorts were anti-epileptic drug (AED), serotonin-norepinephrine reuptake inhibitor (SNRI), selective serotonin reuptake inhibitor (SSRI), and tricyclic antidepressant (TCA). Short-acting and long-acting opioid (SAO, LAO) cohorts were also identified. Pairwise comparisons with the SAO cohort were conducted. Cox proportional hazards regressions modeled the likelihood of receiving guideline-recommended therapy.

RESULTS: The final sample was 96,175 patients (mean age 47.3 years; 72.5% female), distributed into SAO (57%), SSRI (22%), AED (10%), SNRI (6%), TCA (3%), and LAO (2%) cohorts. The SAO cohort had the most discontinuation (49% vs. 6% to 22%, P < 0.01) and the least augmentation (29% vs. 35% to 50%, P < 0.01). Regression analyses indicated that patients with (vs. without) pre-index guideline-recommended medications were 2 to 4 times more likely to receive them postindex. Patients in the opioid cohorts were about half as likely to receive subsequent guideline-recommended medications.

CONCLUSIONS: Opioid use was widespread among patients with FM. Once patients received opioids postdiagnosis, the likelihood of receiving guideline-recommended medications was small. These real-world results indicate an opportunity may exist for improved FM management using recommended therapies in clinical practice.

Average Age = 47

Central Sensitivity is a Spectrum Disorder

Many Species in the Genus

The number of existing functional somatic syndromes (FSSs) is an important risk factor for new, different FSSs.

Warren JW, Langenberg P, Clauw DJ.

Abstract

OBJECTIVE: The objective of this study is to test the hypothesis that the number of functional somatic syndromes (FSSs) predicts new, additional FSSs.

METHODS: In a recent case-control study of interstitial cystitis/painful bladder syndrome (IC/PBS), we used symptom-based consensus definitions to identify these FSSs: fibromyalgia (FM), chronic fatigue syndrome (CFS), irritable bowel syndrome (IBS), chronic pelvic pain, migraine, sicca syndrome and panic disorder. Those present before the incidence year were called antecedent FSSs; those with onset during the incidence year were called incident FSSs. In each of two groups, 312 IC/PBS cases and 313 controls, rates of incident FSSs were compared among those with 0, 1, 2, or ≥3 antecedent FSSs. Confounding was assessed using logistic regression analyses that included the individual antecedent FSSs, published correlates of these FSSs, and demographic variables.

RESULTS: The incidence of a new FSS increased with the number of antecedent FSSs, as did that of incident FM, CFS and IBS studied separately. These findings were not confounded by other variables. The presence of multiple antecedent FSSs generally had the highest odds ratio for new, different, incident FSSs.

CONCLUSIONS: This study revealed that the number of antecedent FSSs was among the strongest risk factors for other FSSs, especially incident FM, CFS and IBS. This suggests that the FSSs are linked through a polysyndromic phenotype. If each FSS is heterogeneous, to seek a pathogenesis common to all FSSs, individuals with multiple FSSs should be sought; to seek a pathogenesis unique to a specific FSS, mature persons who have only that FSS should be studied.

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### Table 2. Members of the central sensitivity syndromes (CSS) family* and an individual central sensitivity syndrome**.

<table>
<thead>
<tr>
<th>A. CSS family</th>
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<tbody>
<tr>
<td>1. Fibromyalgia syndrome</td>
</tr>
<tr>
<td>2. Irritable bowel syndrome</td>
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<tr>
<td>3. Primary (dysfunctional) dysepsia</td>
</tr>
<tr>
<td>4. Tension-type headache</td>
</tr>
<tr>
<td>5. Migraine</td>
</tr>
<tr>
<td>6. Myofascial pain syndrome</td>
</tr>
<tr>
<td>7. Myofascial temporomandibular disorder</td>
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<tr>
<td>8. Primary chronic neck pain</td>
</tr>
<tr>
<td>9. Primary low back pain</td>
</tr>
<tr>
<td>10. Restless legs syndrome</td>
</tr>
<tr>
<td>11. Periodic limb movement disorder</td>
</tr>
<tr>
<td>12. Endometriosis</td>
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<tr>
<td>13. Primary dysmenorrhea</td>
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<tr>
<td>14. Painful bladder syndrome/ interstitial cystitis</td>
</tr>
<tr>
<td>15. Vulvodynia/vulvar vestibulitis</td>
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<tr>
<td>16. Chronic prostatitis/chronic male pelvic pain</td>
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<tr>
<td>17. Posttraumatic stress disorder</td>
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<tr>
<td>18. Multiple chemical sensitivity (chemical intolerance)</td>
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<td>19. Primary burning mouth syndrome</td>
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<td>20. Primary chronic cough #</td>
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<td>21. Primary chronic tinnitus/ primary chronic hearing loss #</td>
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<th>B. Individual central sensitivity syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Complex regional pain syndrome</td>
</tr>
</tbody>
</table>

Identifying The Central Pain Phenotype

1. Negative Affect: PCS, PNAS, CSQ-R, MPQ Affective (60-80% Prevalence)
2. Pain in many body regions, either concurrently over over time.
3. Multiple somatic symptoms (e.g., fatigue, memory difficulties, sleep problems, mood disturbance)
4. More sensitive to other sensory stimuli (e.g., bright light, loud noises, odors, other sensations in internal organs) QST abnormalities.
5. 2 -7x more common in women.
6. Strong family history of chronic pain. (OR 8.5)
7. High self-reported pain & distress (VAS/NPS)
8. Pain triggered or exacerbated by stressors.
9. Peak prevalence of FMS age 35-59 (working-age).*
10. Essentially normal physical examination +/- diffuse tenderness.


* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4575027/
Validated Instruments to Detect Central Pain

“You cannot guess at the extent of fatigue, unrefreshed sleep, cognitive problems, multiplicity of symptoms, and extent of pain without a detailed interview.”

Frederick Wolfe

Validated Instruments to Detect Central Pain

Negative Affect: Pain Catastrophizing Scale (PCS)
Fibromyalgia Screening Questionnaire (NHIS)
The Pain Catastrophizing Scale

Summary of evidence
To date, nearly 100 studies have been published addressing the relation between catastrophizing and pain. The results have shown a remarkable level of consistency. Catastrophizing has been associated with heightened pain in clinical and in experimental studies with adults and with children. It has also been shown to be associated with heightened disability and to predict disability better than disease-related variables or pain. In addition, catastrophizing has been associated with increased pain behavior, increased use of health care services, longer durations of hospital stay, and increased use of analgesic medication. In the absence of intervention, catastrophizing seems to be relatively stable over time, although there are indications that it may decrease with age (at least in adult samples). Several investigations have reported that women catastrophize more than men.

Pain Catastrophizing

There are several reasons to focus on pain catastrophizing. First, from the perspective of a psychosocial researcher who's looked at almost every potential psychological factor related to pain and disability, pain catastrophizing is the single most robust predictor of how people are going to do when they have pain. We talk about reproducibility; this is a finding that is highly reproducible.

Francis Keefe

PCS is a Validated Measure of Maladaptive Coping

1. Published by Sullivan 1995
2. 13 Item Likert Scale
3. 5 min to Administer
4. 3 Sub-scales:
   A. Helplessness [1,2,3,4,5,12]
   B. Rumination [8,9,10,11]
   C. Magnification [6,7,13]
PCS is a Validated Measure of Maladaptive Coping

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2696024/
Pain Catastrophizing Scale (>30 Abnl)

PCS is a measure of dispositional pessimism, or negative expectancies, or maladaptive coping.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>To a slight degree</th>
<th>To a moderate degree</th>
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</tr>
<tr>
<td>I feel I can’t stand it anymore</td>
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<tr>
<td>I keep thinking about how much it hurts</td>
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<td>4</td>
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<tr>
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</tr>
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</table>

http://www.slideshare.net/101N/pain-catastrophizing-scale
Coding Elevated Pain
Catastrophizing
DSM-V Somatic Symptom Disorder (F45.42, G89.4)

Predominant Pain

<table>
<thead>
<tr>
<th>Table 2 DSM-5 diagnostic criteria for somatic symptom disorder</th>
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</thead>
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<tr>
<td>A. One or more somatic symptoms that are distressing or result in significant disruption of daily life.</td>
</tr>
<tr>
<td>B. Excessive thoughts, feelings, or behaviors related to the somatic symptoms or associated health concerns as manifested by at least one of the following:</td>
</tr>
<tr>
<td>1. Disproportionate and persistent thoughts about the seriousness of one's symptoms.</td>
</tr>
<tr>
<td>2. Persistently high level of anxiety about health or symptoms.</td>
</tr>
<tr>
<td>3. Excessive time and energy devoted to these symptoms or health concerns.</td>
</tr>
<tr>
<td>C. Although any one somatic symptom may not be continuously present, the state of being symptomatic is persistent (typically more than 6 months).</td>
</tr>
<tr>
<td>Specify if:</td>
</tr>
<tr>
<td>With predominant pain (previously pain disorder): This specifier is for individuals whose somatic symptoms predominantly involve pain.</td>
</tr>
<tr>
<td>Specify if:</td>
</tr>
<tr>
<td>Persistent: A persistent course is characterized by severe symptoms, marked by impairment, and long duration (more than 6 months).</td>
</tr>
<tr>
<td>Specify current severity:</td>
</tr>
<tr>
<td>Mild: Only one of the symptoms specified in Criterion B is fulfilled.</td>
</tr>
<tr>
<td>Moderate: Two or more of the symptoms specified in Criterion B are fulfilled.</td>
</tr>
<tr>
<td>Severe: Two or more of the symptoms specified in Criterion B are fulfilled, plus there are multiple somatic complaints (or one very severe symptom).</td>
</tr>
</tbody>
</table>

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Heightened Pain Catastrophizing

What bearing does the diagnosis of heightened pain catastrophizing have upon opioid risk stratification?
Catastrophic thinking and increased risk for prescription opioid misuse in patients with chronic pain.

Martel MQ¹, Wasan AD, Jamison RN, Edwards RR.

Abstract

BACKGROUND: As a consequence of the substantial rise in the prescription of opioids for the treatment of chronic noncancer pain, greater attention has been paid to the factors that may be associated with an increased risk for prescription opioid misuse. Recently, a growing number of studies have shown that patients with high levels of catastrophizing are at increased risk for prescription opioid misuse.

OBJECTIVE: The primary objective of this study was to examine the variables that might underlie the association between catastrophizing and risk for prescription opioid misuse in patients with chronic pain.

METHODS: Patients with chronic musculoskeletal pain (n=115) were asked to complete the SOAPP-R, a validated self-report questionnaire designed to identify patients at risk for prescription opioid misuse. Patients were also asked to complete self-report measures of pain intensity, catastrophizing, anxiety, and depression.

RESULTS: Consistent with previous research, we found that catastrophizing was associated with an increased risk for prescription opioid misuse. Results also revealed that the association between catastrophizing and risk for opioid misuse was partially mediated by patients' levels of anxiety. Follow-up analyses, however, indicated that catastrophizing remained a significant 'unique' predictor of risk for opioid misuse even when controlling for patients' levels of pain severity, anxiety and depressive symptoms.

DISCUSSION: Discussion addresses the factors that might place patients with high levels of catastrophizing at increased risk for prescription opioid misuse. The implications of our findings for the management of patients considered for opioid therapy are also discussed.

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Catastrophizing Predicts Opioid Misuse


Evaluation of How Depression and Anxiety Mediate the Relationship between Pain Catastrophizing and Prescription Opioid Misuse in a Chronic Pain Population.

Arteta J1, Cobos B1, Hu Y1, Jordan K2, Howard K1.

Author information

Abstract

OBJECTIVE: We investigated the extent to which anxiety and depression mediate the relationship between pain catastrophizing and the risk of prescription opioid misuse in chronic pain patients.

METHODS: 215 patients with chronic occupational musculoskeletal disorders completed self-report measures upon admission to a functional restorative program. A bootstrap multivariate regression analysis was conducted to assess how depression and anxiety mediated the relationship between pain catastrophizing and prescription opioid misuse.

RESULTS: Catastrophizing, anxiety, and depression predicted higher risk for prescription opioid misuse. Furthermore, anxiety and depression acted as mediators while controlling for the effects of gender and age. Finally, it was found that the effects of catastrophizing on risk for prescription opioid misuse were completely eliminated by those of depression.

CONCLUSION: Due to the partially independent relationship of anxiety and catastrophizing, it is recommended that treatments for chronic pain patients employ techniques addressing both behaviors. The relationship between depression and catastrophizing requires more research since it was observed that their effects were confounded.

N = 215

Wiley Periodicals, Inc.

Correlates of prescription opioid therapy in Veterans with chronic pain and history of substance use disorder.

Lovejoy TJ, Dobscha SK, Turk DC, Weimer MB, Morasco BJ.

Author information

Abstract

Patients with a history of substance use disorder (SUD) are more likely to be prescribed opioid medications for chronic pain than patients without an SUD history; however, little is known about prescription opioid therapy in populations composed exclusively of patients with SUD. This study examined correlates of prescription opioid therapy in 214 Veterans with chronic noncancer pain and an SUD history. Participants completed psychosocial questionnaires and participated in a structured mental health diagnostic interview, and medical diagnoses and opioid pharmacy data were abstracted from their Department of Veterans Affairs electronic medical records. Participants were categorized into three groups based on opioid prescriptions in the past 90 d: no opioid therapy (n = 134), short-term (<90 d) opioid therapy (n = 31), or long-term (≥ 90 d) opioid therapy (n = 49). Relative to participants prescribed no or short-term opioid therapy, participants who were prescribed long-term opioid therapy had a greater number of pain diagnoses; reported higher levels of pain severity, interference, and catastrophizing; and endorsed lower chronic pain self-efficacy. In a multivariate model, number of pain diagnoses and pain interference were associated with a greater likelihood of being prescribed long-term opioid therapy after controlling for demographic and clinical characteristics. Findings highlight the poor pain-related functioning in patients with SUD histories who are prescribed long-term opioid therapy.

KEYWORDS: Veterans; chronic noncancer pain; chronic pain; long-term opioid therapy; opioids; pain; pain interference; prescription opioid therapy; short-term opioid therapy; substance use disorder

Catastrophizing Predicts Pain Sensitivity & Severity

N = 211


Pain catastrophizing predicts pain intensity, disability, and psychological distress independent of the level of physical impairment.

Severeijns R, Vlaeyen JW, van den Hout MA, Weber WE.

Abstract

OBJECTIVE: The aim of the current study was to examine the relation between catastrophizing and pain intensity, pain-related disability, and psychological distress in a group of patients with chronic pain, controlling for the level of physical impairment. Furthermore, it was examined whether these relations are the same for three subgroups of chronic pain patients: those with chronic low back pain, those with chronic musculoskeletal pain other than low back pain, and those with miscellaneous chronic pain complaints, low back pain and musculoskeletal pain excluded.

DESIGN: Correlational, cross-sectional.

PATIENTS AND SETTING: Participants in this study were 211 consecutive referrals presenting to a university hospital pain management and research center, all of whom had a chronic pain problem.

RESULTS: Overall, chronic pain patients who catastrophize reported more pain intensity, felt more disabled by their pain problem, and experienced more psychological distress. Regression analyses revealed that catastrophizing was a potent predictor of pain intensity, disability, and psychological distress, even when controlled for physical impairment. No fundamental differences between the three subgroups were found in this respect. Finally, it was demonstrated that there was no relation between physical impairment and catastrophizing.

CONCLUSIONS: It was concluded that for different subgroups of chronic pain patients, catastrophizing plays a crucial role in the chronic pain experience, significantly contributing to the variance of pain intensity, pain-related disability, and psychological distress. These relations are not confounded by the level of physical impairment. Some clinical implications of the results are discussed. Finally, the authors concluded that these results support the validity of a cognitive-behavioral conceptualization of chronic pain-related disability.

Catastrophizing and perceived injustice: risk factors for the transition to chronicity after whiplash injury.


Abstract

STUDY DESIGN: The article will summarize research that has supported the role of pain catastrophizing and perceived injustice as risk factors for problematic recovery after whiplash injury.

OBJECTIVE: This article focuses on two psychological variables that have been shown to impact on recovery trajectories after whiplash injury; namely pain catastrophizing and perceived injustice.

SUMMARY OF BACKGROUND DATA: Research has shown that psychological variables play a role in determining the trajectory of recovery after whiplash injury.

METHODS: This article will focus on two psychological variables that have been shown to impact on recovery trajectories after whiplash injury; namely pain catastrophizing and perceived injustice. The article will summarize research that has supported the role of pain catastrophizing and perceived injustice as risk factors for problematic recovery after whiplash injury.

RESULTS: Several investigations have shown that measures of catastrophizing and perceived injustice prospectively predict problematic trajectories of recovery after whiplash injury. Basic research points to the potential roles of expectancies, attention, coping and endogenous opioid dysregulation as possible avenues through which catastrophizing might heighten the probability of the persistence of pain after whiplash injury. Although research has yet to systematically address the mechanisms by which perceived injustice might contribute to prolonged disability in individuals with whiplash injuries, there are grounds for suggesting the potential contributions of catastrophizing, pain behavior and anger.

CONCLUSION: A challenge for future research will be the development and evaluation of risk factor-targeted interventions aimed at reducing catastrophizing and perceived injustice to improve recovery trajectories after whiplash injury.

Catastrophizing Predicts Post-Op Opioid Use

N = 252


Differential predictors of acute post-surgical pain intensity after abdominal hysterectomy and major joint arthroplasty.

Pinto PR¹, McIntyre T, Araújo-Soares V, Costa P, Almeida A.

Abstract

BACKGROUND: Psychological factors have a significant role in post-surgical pain, and their study can inform pain management.

PURPOSE: The aims of this study are to identify psychological predictors of post-surgical pain following abdominal hysterectomy (AH) and major joint arthroplasty (MJA) and to investigate differential predictors by type of surgery.

METHOD: One hundred forty-two women undergoing AH and 110 patients undergoing MJA were assessed 24 h before (T1) and 48 h after (T2) surgery.

RESULTS: A predictive post-surgical pain model was found for AH and MJA yielding pre-surgical pain experience and pain catastrophizing as significant predictors and a significant interaction of pre-surgical optimism and surgery type. Separate regression models by surgery type showed that pre-surgical optimism was the best predictor of post-surgical pain after MJA, but not after AH.

CONCLUSIONS: Findings highlight the relevance of psychological predictors for both surgeries and the value of targeting specific psychological factors by surgery type in order to effectively manage acute post-surgical pain.

The communal coping model of catastrophizing: patient-health provider interactions.

Nau, P. M., Day, M. B., Rubin, N. A., Alexander, C. G., Jones, R.

Abstract

OBJECTIVE: The study sought to elucidate and refine the interpersonal, communicative dimension of the communal coping model (CCM) of catastrophizing. The primary aim was twofold. First, we examined the relations among pain intensity, catastrophizing, and pain behaviors as they function within the patient-health provider relationship. Second, we investigated the role of catastrophizing and pain behaviors in potentially influencing patient satisfaction with the provider, provider attitudes, and provider behavior. Mediation models were examined.

DESIGN: The study was cross-sectional design with repeated measures.

SETTING: This study was conducted at a university-based family medicine clinic and a private practice rheumatology clinic. Nineteen health providers and 49 chronic pain patients receiving treatment in a medical setting completed the study.

OUTCOME MEASURES: Patient outcome measures included pain intensity, catastrophizing, pain behaviors, and patient satisfaction with the provider. Health provider outcome measures were an assessment of provider attitudes and length of medical exam.

RESULTS: The patient's level of catastrophizing entering the medical exam significantly predicted the interactive dynamics between the patient and the health provider during the exam and patient satisfaction after the exam. The patient's perceptions of pain and catastrophic thought processes may be interpersonally expressed to health providers via exaggerated pain behaviors.

CONCLUSIONS: Current findings indicate suggestions for refining the CCM. Results suggest that alleviation of catastrophic cognitions may facilitate more effective interpersonal communication within the patient-health provider relationship. Identification of those factors that improve patient-provider dynamics has important implications for the advancement of treatment for chronic pain and reducing the costs associated with persistent pain.

Increased pain catastrophizing associated with lower pain relief during spinal cord stimulation: results from a large post-market study.

Rosenberg JC1, Schultz DM2, Duarte LE3, Rosen SM4, Raza A5.

Abstract

BACKGROUND: Pain catastrophizing is a negative cognitive distortion to actual or anticipated pain. Our aim was to determine if greater catastrophizing has a deleterious relationship with pain intensity and efficacy outcomes in patients receiving SCS.

METHODS: As part of an ongoing Institutional Review Board-approved, multi-site, single arm post-market study, 386 patients were implanted with an Eon Mini™ SCS system and had follow-up visits at 3, 6, and 12 months post-implant. Outcomes collected during the study included, but were not limited to pain intensity using the numeric rating scale (NRS), patient reported pain relief (PRP), satisfaction with their SCS system, quality of life (QOL), pain catastrophizing scale (PCS) and state-trait anxiety index (STAI).

RESULTS: NRS scores were associated with higher PCS scores at six months (r = 0.50, p < 0.001). The PCS was a strong predictor of the NRS when controlled for known confounders. Patients with PCS ≥30 at 6-months post-implant had a lower six-month PRP (p < 0.001) and were five times more likely to report dissatisfaction with their SCS device (p < 0.001, OR = 5.46, 95% CI: 2.51-6.35). Additionally, at six months, those who were clinically catastrophizing were three times more likely to report deterioration in QOL (p < 0.002, OR = 3.12, 95% CI: 1.62-5.51). These findings were similar at the 12 months follow visit.

CONCLUSIONS: Our results indicate that patients with greater catastrophizing, post-implant, were more likely to report higher pain intensity and lower pain relief, quality of life and satisfaction with SCS. These results indicate that associations between pain intensity and pain-related mental health may contribute to influence the overall efficacy of SCS.

Abnormal Pain Catastrophizing Predicts

Elevated Pain Catastrophizing

- Opioid Misuse
- Pain Sensitivity & Severity
- Pain Chronicity
- Post-Op Opioid Use
- Pt. Dis-Satisfaction
- Injection Failure
Catastrophizing Treatment: 8wk CBT Group

N = 61

<table>
<thead>
<tr>
<th>Measure/Time</th>
<th>CBT 1</th>
<th>EDU 2</th>
</tr>
</thead>
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<tr>
<td>PCS³, mean (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>32.3 (15.7)</td>
<td>26.0 (16.8)</td>
</tr>
<tr>
<td>Post</td>
<td>23.5 (13.1)</td>
<td>24.1 (14.7)</td>
</tr>
<tr>
<td>6 months Post</td>
<td>23.7 (13.4)</td>
<td>24.7 (15.1)</td>
</tr>
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</table>

Catastrophizing Treatment: 8wk Mindfulness Group

N = 29

Table 5

<table>
<thead>
<tr>
<th>MAIA</th>
<th>TAU</th>
<th>MBCT + TAU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre M (SD)</td>
<td>Post M (SD)</td>
</tr>
<tr>
<td>Noticing</td>
<td>3.13 (1.26)</td>
<td>3.29 (1.20)</td>
</tr>
<tr>
<td>Attention regulation</td>
<td>2.08 (1.34)</td>
<td>2.58 (1.36)</td>
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<tr>
<td>Emotional awareness</td>
<td>2.65 (1.63)</td>
<td>2.78 (1.66)</td>
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<tr>
<td>Self-regulation</td>
<td>2.10 (1.42)</td>
<td>2.46 (1.62)</td>
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<tr>
<td>Not distracting</td>
<td>2.14 (0.80)</td>
<td>1.69 (0.81)</td>
</tr>
<tr>
<td>PCS</td>
<td>27.17 (10.67)</td>
<td>25.25 (11.52)</td>
</tr>
</tbody>
</table>

Questions?
Sample Case

Mrs. C: 50y/o WF with chronic low back pain and headache x 20yrs

FHX of chronic pain: + Mother & Sibling

Meds: HCTZ, IBU, topiramate & sumatriptan
# Sample Case

Score = 40/52 (> 30 Abnormal)

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<td>X</td>
<td>4</td>
</tr>
</tbody>
</table>
Sample Case

Score = 11 (FMS > 13)

N= 1

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References

Pain Catastrophizing Bibliography: https://www.slideshare.net/secret/oCvpVhV8yCuCtH

Pain Catastrophizing Scale: http://www.slideshare.net/101N/pain-catastrophizing-scale

2011 FMS Screener: http://www.slideshare.net/101N/fibromyalgia-survey-questionnaire

Catastrophizing theoretical perspectives: http://www.slideshare.net/101N/catastrophizing-trait-or-state
Thank You

We're leading the way in responsible opioid prescribing advocacy and education.

www.supportprop.org