Management of Chronic Lower Back Pain

An Evidence-Based Practice Recommendation and Project Proposal

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Abstract

Chronic lower back pain is a leading cause of disability worldwide. In the Global Burden of Disease 2010 study LBP (low back pain) ranked highest in terms of disability (Hoy, March & Brooks, 2014). Studies show that more than half of patients treated for chronic low back pain in the United States are treated with opioid analgesics (Abdel, Maher, Williams, Day & McLachlan, 2016). Yet, current literature does not support the use of opioids for chronic lower back pain (Chaparro et al., 2013). Risks involved with opioid treatment include physical and psychological dependence and even death (Johnson, 2016). Primary care providers need guidance on the evaluation and treatment of chronic lower back pain. First line recommended treatment guidelines for chronic lower back pain include nonpharmacologic treatment with exercise, multidisciplinary rehabilitation and supportive therapies such as acupuncture, mindfulness-based stress reduction, tai chi or yoga (Qaseem, Wilt, McLean & Forciea, 2017).

Keywords: chronic low back pain, primary care, opioid, evidence-based practice

Low back pain (LBP) is one of the most common reasons for physician visits in the United States. LBP is the second most common cause of disability in the US, attributing to an estimated 149 million days of work lost yearly. Over 80% of the population will experience an episode of back pain in their lifetime. Patients with chronic lower back pain (typically lasting more than 3 months) are more likely to seek care and utilize more care, as compared to patients with acute lower back pain (Freberger et al., 2009). For chronic lower back pain, the American College of Physicians (ACP) recommends non-drug therapy including exercise, acupuncture, stress reduction, cognitive behavioral therapy or spinal manipulation (Quaseem et al., 2017). Yet, opioids have been an accepted treatment for lower back pain, despite the limited evidence for their efficacy (Ashworth, Green, Dunn, & Jordan, 2013). More than half of patients treated for chronic low back pain in the United States are treated with opioid analgesics (Abdel et al., 2016). As the treatment of chronic lower back pain with opioid analgesics falls out of favor, primary care providers need guidance for evidence-based treatment options. The purpose of this paper is to conduct an evidence based critical analysis of literature to determine evidence-based best practices for the management of chronic lower back pain.

Background

The treatment modalities of chronic lower back pain have shifted from a pharmacologic approach to a multidisciplinary approach. For the past twenty years opioid prescriptions have increased, making opioids the most commonly prescribed drug class. Half of regular opioid users report having back pain (Deyo, VonKorff & Duhrkoop, 2015). Opioid medications for the treatment of chronic pain have a large potential for serious side effects, decreased quality of life and even death (Elder, Ritenbaugh, Aickin, Hammerschlag,Dworkin, Mist & Harris, 2012). The use of prescription opioids has quadrupled since 1999 yet reports of average pain have remained

the same over the same period of time (Dowell, Hagerich & Chou, 2016). In the United States more than sixty percent of drug overdoses involve the use of opioids and 91 Americans die daily from opioid overdose (CDC, 2018). In response to this epidemic, The Center for Disease Control and Prevention (CDC) recommends improving prescriptive practices, expanding treatment for addiction, and reducing illegal access to opioid drugs (Dowell et al., 2016). Recently, the American College of Physicians (ACP) developed clinical practice guidelines for noninvasive treatment of acute, sub-acute, and chronic lower back pain. These guidelines include nonpharmacological treatment with exercise, multidisciplinary rehabilitation, massage acupuncture or spinal manipulation. If pharmacologic treatment is necessary, anti-inflammatory drugs or muscle relaxants are recommended. Opioids should only be considered as an option if other treatments have failed and the benefits outweigh the risks (Quaseem et al., 2017). By incorporating best practice guidelines in the management of chronic pain, healthcare providers would be able to better meet the healthcare needs of those suffering with chronic lower back pain. Creating a comprehensive treatment guideline accompanied by availability of local pain management resources may be helpful for these patients and providers. Patients with chronic pain tend to be complex, with comorbidities such as depression and other psychosocial issues. Ideally these patients should be managed in an interdisciplinary pain clinic with access to medication, behavioral health and addiction specialists (Cheatle and Barker, 2014).

Literature Review

An online database search was performed using Cumulative Index to Nursing and Allied Health Literature (CINAHL) complete limiting articles to the past 10 years using the terms “chronic lower back pain” and “opioids” yielding sixteen results. Of these results one article was found to be relevant to the management of chronic lower back pain in a primary care setting.

PubMed database was searched using the key words “chronic lower back pain,” “opioid,” and “primary care” and limited to the last 10 years, yielding 49 results. Of these 49 results 11 were relevant to the management of chronic lower back pain in a primary care setting. In the Cochrane database of systematic reviews for the last 10 years there were 12 articles available under the query “chronic lower back pain” and “primary care,” of which three articles were relevant. In addition to the systematic reviews, articles were chosen to analyze the relationship between complementary alternative medicine (CAM) therapies and pain management.

A literature matrix was created to compare the results of the literature review. Overall, the literature indicates that the best management practices for the management of chronic lower back pain is a multi-disciplinary approach. When pain management is not available the primary care provider should coordinate therapies as indicated. There is minute evidence supporting the efficacy of opioid use in the management of chronic lower back pain. When selecting opioids for the treatment of lower back pain extreme caution should be used, taking into consideration the patients psycho-social background (Chaparro et al., 2013). Clinical practice guidelines have been adopted for the treatment of lower back pain by the American College of Physicians. These therapies include the use of a combination of pharmacologic and non-pharmacologic therapies, as well as exploring options such as CAM therapies (Qaseem et al., 2017).

For the treatment of acute lower back pain, with no red flags, the use of NSAIDS (non-steroidal anti-inflammatory drugs), returning to regular activity and reassurance is recommended as most acute back pain is self-limiting. If pain lasts for greater than 4 weeks or there is suspected pathology a referral should be considered (Oliveria, Maher, Traeger, Lin, Chenot, Van Tulder & Kowes, 2018). As lower back pain persists there is moderate evidence to support the use of superficial heat and exercise for the treatment of chronic lower back pain. Non-

pharmacological treatment with exercise, and multidisciplinary rehabilitation are the preferred treatments over pharmacologic treatment. If medication is desired the recommended drugs include NSAIDS or skeletal muscle relaxants. There is low level evidence to support the use of fluoxetine in the treatment of chronic lower back pain (Quaseem et al., 2017). There is also weak evidence to support the use of short term low dose opioids when NSAIDS are contraindicated in the treatment of chronic lower back pain, but it is agreed that the risks outweigh the benefits and the use of opioids should be avoided (Oliveria et al, 2018).

Although CAM therapies are mention throughout the recommendations for the treatment of chronic lower back pain, there is very limited evidence to support the use of any one specific CAM therapy. Evidence supports a multi-disciplinary approach, tailored to patient needs, that may include the use of CAM therapies based on patient preference.

Evidence-Based Practice Recommendation

Patterns and themes that reoccur in the literature are the limitations of the studies, the lack of a good measurement tool for pain and the inability to accurately measure the success of interventions. There is also quite limited data studying the effects of CAM therapies as the current measurement tools prove to be ineffective or inaccurate. There is emerging research demonstrating the correlation between chronic pain, disability and depression. Addressing the psycho-social aspects of a patient's life may aid in more effective pain management. In essence there is a push to go back to the roots of nursing and treat the "whole patient" if there are needs that are not addressed patients have a reduced ability to cope and heal.

Theoretical Framework

AHRQ Model of Knowledge Transfer

The AHRQ (Agency for Healthcare Research and Quality) Model of Knowledge transfer consists of three stages. The first stage is knowledge creation and distillation. The second stage is diffusion and dissemination, and third is organizational adoption and implementation (Titler, 2008). This evidence-based recommendation will use a critical analysis of literature to identify best practices for the management of chronic lower back pain. The second stage of the process will be diffusion and dissemination of information. Once best practices are identified, local resources will be identified, compiled, and provided to clinicians in order to facilitate the implementation of best practice in a primary care setting. The third stage consist of developing stakeholder buy-in leading to adoption and implementation of the recommended practices.

Project Proposal and Implementation

I would like to focus my project proposal at Waianae Coast Comprehensive Health Center. I feel this is a perfect opportunity to explore the subject of acupuncture and other complimentary therapies and chronic pain management. While Waianae Coast Comprehensive Health Center has a patient population that is complex, with decreased compliance due to psychosocial issues, low health literacy and high levels of poverty, the Health Center offers a variety of complimentary therapies for pain management. The pain management team at Waianae Coast Comprehensive Health Center (WCCHC) has a full-time acupuncturist, in house physical therapist, behavioral therapist, chiropractor, nurse practitioner and physician that currently working to create a multidisciplinary pain management team. Other complementary resources include a Native Hawaiian Healing Center that incorporates Lomilomi (traditional Hawaiian

massage), Laau Lapaau (herbal medicine), Laau Kahea (spiritual healing) and Hooponopono (conflict resolution).

Based on the clinical practice guidelines of the AAFP (American Academy of Family Physicians) "Nonpharmacologic treatment, including exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction, tai chi, yoga, motor control exercise, progressive relaxation, biofeedback, low-level laser therapy, cognitive behavioral therapy, or spinal manipulation should be used initially for most patients who have chronic low back pain." I would like compare both patient and provider satisfaction of pain management and opioid consumption between patients receiving traditional treatment for chronic lower back pain in a primary care setting to patients receiving multidisciplinary treatment in the pain management clinic.

The pain management clinic develops individual care plans with goals of pain management tailored to each patient. The goals vary from increased mobility, decreased pain at rest to being able to participate in physical sports activities or work. Once a goal is established between the patient and pain management team, a treatment plan is developed using the various members of the interdisciplinary team. Focusing on realistic goals for the patient based on the pathology of the pain and the patient's desired outcome is essential to developing an effective care plan. Addressing psychosocial needs as well as behavioral health is part of the multi-disciplinary approach to treating the patient and developing and individual plan of care, thus improving outcomes.

Opioid therapy should be considered as a last choice in the treatment of LBP. Upon the use of opioids, the CDC has developed a checklist for the consideration of opioid therapy (Appendix A). This checklist should be referenced when opioid therapy is deemed necessary. If

the patient has been taking opioids for chronic pain for a length of time measures are taken to decrease opioid use to less than 50 morphine milligram equivalents (MME) daily, as recommended by the CDC. According to CDC reports (2016) there is increased risk for overdose with no evidence of improved pain relief with doses above 50 MME daily. The CDC also offers an application for guidance in opioid therapy for chronic pain.

Goals and Strategies

In order to evaluate the value of pain management in a multidisciplinary setting I propose the following problem statement. What is the relationship between patient and provider satisfaction, pain control and opioid consumption in the management of chronic lower back pain in a multidisciplinary setting versus treatment in primary care setting with the traditional approach?

The goal would be to measure the benefit of a multidisciplinary approach in the reduction of opioid prescribing in the management of chronic lower back pain versus pain management in a primary care setting. A multidisciplinary approach would include referral to pain management clinic. The traditional method of pain management would be continued from the primary care clinic using pharmacologic interventions with referrals to physical therapy and other specialties as needed. In order to analyze the issue, we must look at patient and provider satisfaction of chronic pain management in the two defined groups.

Project team members would include: patients, nurses, providers, acupuncturist, behavioral health, physical therapy, occupational therapy, receptionists and medical assistants. Potential barriers to implementation may include lack of staff buy-in, adequate time for discussion and education, as well as patient compliance. The first stage, knowledge transfer, and second stage, diffusion of information, have already been implemented. The multidisciplinary

team has been created and many patients are already using these services. The last stage of knowledge transfer lies in organizational adoption. While many patients with chronic pain have transferred their care to pain management there are those that are still seeing their primary care provider for the management of chronic pain.

Methods

To implement such an evaluation, education on the availability of the pain management clinic and referral process should be made available to all participants. Education on accurate and consistent documentation of pre and post therapy pain levels would be necessary for all participants in the study as well as the nurses or medical assistants that are recording data. Development of a tool to measure pain levels throughout the course of treatment (possible pain journal) would be helpful. Chart audits for comparison of opioid use and perceived pain control before and after use of complimentary therapy would also be necessary.

In order to communicate with team members throughout the project, I would suggest staff huddles accompanied with group e-mails displaying quarterly project updates. Currently an interdisciplinary team for pain management is already in place involving primary care, acupuncture, physical therapy, chiropractic therapy and behavioral health. This project would evaluate the team and the success of adjunct therapies in the reduction of opioid prescription and increased pain management. An estimated 5-10 hours of education and time to evaluate measurement tools would be necessary to implement this evaluation. With many of the resources are already in place, an accurate measurement tool and a pre and post survey would need to be developed in conjunction with facility approval for project implementation and chart audits.

Performance Measures

In order to measure satisfaction levels, I propose creating a survey with Survey Monkey asking providers to give feedback regarding their patients involved in the pain management program. Key survey questions would include assessing the intensity of pre and post treatment pain levels, using pain, enjoyment and general activity (PEG) scoring, quantifying the amount of medication prescribed for pain control pre and post treatment, and documenting progress made toward functional pain goals. An evaluation of the number of adjunct therapies for management of chronic lower back pain and patient compliance with complimentary therapies would be included. Finally, an evaluation of overall patient satisfaction with complimentary therapy in the management of chronic LBP would be addressed.

I would also like to encourage the patients to participate in a survey regarding their satisfaction with the level of pain control and relationship with providers in both settings. Compliance with surveys may be difficult in this population due to the complex psychosocial issues, low health literacy and cultural practices of the community. Ensuring and emphasizing that the surveys would remain anonymous and also offering some type of drawing for prize or gift card may increase compliance.

Discussion

The limitations of this project proposal include provider buy-in as some providers are reluctant to relinquish patients from their panel, they may have well established relationships with these patients and feel that they can provide adequate care. Patients may also be reluctant to change their medication regimen, their provider or consider alternative methods of pain management. However, there are studies that show many patients feel that pain is undertreated by their primary care provider (Gatchal, McGreary, McGeary & Lippe, 2014). Reducing the

number of chronic pain management appointments in the primary care clinic also has the potential to increase the availability of primary care providers for other types of medical appointments.

Research demonstrates that the benefits of an interdisciplinary pain management team include better pain control, reduced time of disability, decreased symptoms of depression and decreased opioid dependence as well as better pain control (Olivera et al., 2018). And opioid dosing of greater than 50 MME daily have been associated with twice the risk of opioid overdose than lower doses, where doses above 90 MME daily require careful justification due to significant overdose risk (CDC, 2018).

The cost efficacy of the pain management clinic should be analyzed in both short and long term. The short-term analysis would be a comparison of quarterly findings and the long-term findings could be compared over the course of one to two years. The long-term cost efficacy of pain management has been demonstrated in other studies, with decreased medical costs, decreased sick days and reduced risk of opioid overdose (Gatchal et al., 2014). Are there enough patients in this population to support the multidisciplinary staff required for the operating costs of the clinic? Currently the pain management clinic is offering acupuncture to its patients free of charge, as acupuncture is not covered by most insurance plans. The cost of acupuncture is currently covered by a grant from HMSA(Hawaii Medical Services Association). Will there be future funding for adjunct therapies beyond the grant?

Clearly evidence supports the use of a multidisciplinary team, but can patients and insurance companies cover the costs of these services? As the pain management clinic has been in place for less than a year the financial aspect is of particular interest. The evidence-based recommendations have made for nearly a decade but third party buy in continues to be low

(Gatchal et al., 2014). A solid study of the continued benefits of an interdisciplinary pain management team could increase third party buy-in and help secure future funding for complimentary therapies in the pain management clinic.

Conclusion

This evidence-based recommendation for the management of chronic lower back pain includes a multidisciplinary approach. Evidence shows that for patients with chronic lower back pain, opioid analgesics provide only a short-term relief from pain and can cause detrimental side effects. A patient centered multidisciplinary approach is recommended for optimal management of chronic lower back pain (Abdel et al., 2016). If a pain management team or referral is not available it is up to the provider to coordinate and implement a multidisciplinary approach to treat chronic lower back pain. Treating chronic lower back pain with the traditional methods of pharmacotherapy and opioid use could be causing more harm than good. It is in the provider and patient's best interest to explore alternative and interdisciplinary methods of pain management to support a safer more effective plan of care.

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Appendix A

Checklist for prescribing opioids for chronic pain

For primary care providers treating adults (18+) with chronic pain ≥3 months, excluding cancer, palliative, and end-of-life care

CHECKLIST

When CONSIDERING long-term opioid therapy

- ☐ Set realistic goals for pain and function based on diagnosis (eg, walk around the block).
- ☐ Check that non-opioid therapies tried and optimized.
- ☐ Discuss benefits and risks (eg, addiction, overdose) with patient.
- ☐ Evaluate risk of harm or misuse.
  - Discuss risk factors with patient.
  - Check prescription drug monitoring program (PDMP) data.
  - Check urine drug screen.
- ☐ Set criteria for stopping or continuing opioids.
- ☐ Assess baseline pain and function (eg, PEG scale).
- ☐ Schedule initial reassessment within 1–4 weeks.
- ☐ Prescribe short-acting opioids using lowest dosage on product labeling; match duration to scheduled reassessment.

If RENEWING without patient visit

- ☐ Check that return visit is scheduled ≤3 months from last visit.

When REASSESSING at return visit

Continue opioids only after confirming clinically meaningful improvements in pain and function without significant risks or harm.

- ☐ Assess pain and function (eg, PEG); compare results to baseline.
- ☐ Evaluate risk of harm or misuse:
  - Observe patient for signs of over-sedation or overdose risk.
    - If yes: Taper dose.
  - Check PDMP.
  - Check for opioid use disorder if indicated (eg, difficulty controlling use).
    - If yes: Refer for treatment.
- ☐ Check that non-opioid therapies optimized.
- ☐ Determine whether to continue, adjust, taper, or stop opioids.
- ☐ Calculate opioid dosage morphine milligram equivalent (MME).
  - If ≥50 MME/day total (≥50 mg hydrocodone; ≥33 mg oxycodone), increase frequency of follow-up; consider offering naloxone.
  - Avoid ≥90 MME/day total (≥90 mg hydrocodone; ≥60 mg oxycodone), or carefully justify; consider specialist referral.
- ☐ Schedule reassessment at regular intervals (≤3 months).

REFERENCE

EVIDENCE ABOUT OPIOID THERAPY

- *Benefits of long-term opioid therapy for chronic pain not well supported by evidence.*
- *Short-term benefits small to moderate for pain; inconsistent for function.*
- *Insufficient evidence for long-term benefits in low back pain, headache, and fibromyalgia.*

NON-OPIOID THERAPIES

Use alone or combined with opioids, as indicated:

- Non-opioid medications (eg, NSAIDs, TCAs, SNRIs, anti-convulsants).
- Physical treatments (eg, exercise therapy, weight loss).
- Behavioral treatment (eg, CBT).
- Procedures (eg, intra-articular corticosteroids).

EVALUATING RISK OF HARM OR MISUSE

Known risk factors include:

- Illegal drug use; prescription drug use for nonmedical reasons.
- History of substance use disorder or overdose.
- Mental health conditions (eg, depression, anxiety).
- Sleep-disordered breathing.
- Concurrent benzodiazepine use.

Urine drug testing: Check to confirm presence of prescribed substances and for undisclosed prescription drug or illicit substance use.

Prescription drug monitoring program (**PDMP**): Check for opioids or benzodiazepines from other sources.

ASSESSING PAIN & FUNCTION USING PEG SCALE

PEG score = average 3 individual question scores (30% improvement from baseline is clinically meaningful)

Q1: *What number from 0–10 best describes your **pain** in the past week?*
0="no pain", 10="worst you can imagine"

Q2: *What number from 0–10 describes how, during the past week, pain has interfered with your **enjoyment of life**?*
0="not at all", 10="complete interference"

Q3: *What number from 0–10 describes how, during the past week, pain has interfered with your **general activity**?*
0="not at all", 10="complete interference"

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