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Chronic Pain and Addiction: Challenging Co-occurring Disorders

Mel Pohl, M.D., FASAM* & Logan Smith, B.A.β

Abstract — Chronic pain is commonly treated by prescribing an opioid medication. For those suffering from both chronic pain and substance dependence, barriers to adequate pain management increase. This often causes both disorders to exacerbate one another. Effective treatment may also be hampered by opioid-induced hyperalgesia, tolerance, physical dependence, “chemical coping,” and diminished physical and emotional functioning. This article reviews current research trends, potential problems stemming from prescription opioid use, and suggestions for clinical practice.

Keywords — addiction, chronic pain, prescription medication, long-term opioid therapy, opioid-induced hyperalgesia, substance abuse

There is a serious problem in this country with the overuse, abuse, and addiction to opioid medications for the treatment of chronic pain. Many prescribers have lost the perspective on the benefits versus harm that should guide a therapeutic intervention for any disease process. The challenge facing the medical system is to help patients manage their chronic pain effectively without sacrificing function and quality of life.

Thirty percent of adults in the United States experience chronic pain (American Pain Society 2009) and each year over four million Americans receive a prescription for a long-acting opioid (Okie 2010). Opioids are now the most commonly prescribed medication and their increased use correlates with changes in chronic pain treatment policies (Grady, Berkowitz & Katz 2011; Pohl & Smith 2011). Along with increased rates of opioid medication distribution, rates of overdose, death, and addiction treatment episodes have also risen (Paulozzi, Budnitz & Xi 2006).

It is difficult to accurately estimate the prevalence of opioids abuse in patients who receive opioids in primary care settings. (Korff et al. 2011). Rates of addiction for those with chronic pain have been estimated at 3.2% to 18% (Fishbain, Rosomoff & Rosomoff 1992), 24% (Hoffman et al. 1995), 27% (Chabal et al. 1997), and 20% to 26% for those who have been previously hospitalized (Regier, et al. 1984).

There are many definitions of “addiction” and “drug dependence” in the literature. One definition of addiction is: “...a primary, chronic, neurobiological disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving” (ASAM 2001). (ASAM’s new definition of addiction is available at www.asam.org/research-treatment/definition-of-addiction.) Research has shown that users of prescribed opioids had significantly higher rates of misuse than those with a history of drug abuse who did not receive opioids (Edlund et al. 2007). Addiction is not the result simply of opioids being prescribed or ingested. In patients who have a history of addiction or other risk factors for developing addiction, opioids should be prescribed carefully due to a predisposition to develop misuse, abuse or addiction to these medications.

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This article will review the risk/benefit ratio of the long-term use of opioids, and pay special attention to the challenges of utilizing opioids for chronic pain in patients with a history of addictive disease. Some of what is discussed is based on clinical phenomena in a group of patients (over 200) whom I have treated in the last five years. The majority of these patients have had chronic noncancer pain and become addicted to their prescription medications. Others were using opioid and sedative medications with a worsening of their overall physical condition. It is these two types of patients that this article is addressing: patients who take opioids and get worse. Patient functioning is the key; when the patient improves while using opioids without significant side effects, the results of taking opioids are beneficial.

There are many guidelines created by a variety of organizations for the use of opioids for chronic pain (SAMHSA 2012; WHO 2000) with more to come over the next few years. What is lacking are studies to discern the true outcome of long-term opioid treatment for chronic pain and the incidence of the potential problems that are discussed in this article.

I am not discussing the significant number of patients who take opioids for chronic pain on a long term basis who improve (pain decreases and function is better). I am also not addressing the use of opioids for painful conditions associated with the process of terminal illnesses (cancer, etc.)

CURRENT RESEARCH

Available meta-analysis studies reviewing the use of opioids for chronic pain consist primarily of research conducted within a narrow timeframe, usually twelve weeks or less (Manchikanti et al. 2011; Chou et al. 2009; Furlan et al. 2006). There is a lack of adequate research involving the long-term use of opioids for chronic pain conditions. The current standard of practice of long-term use of opioids is based on a body of information that has no well-documented randomized control studies. This should be of extreme concern for those who treat chronic pain conditions with opioids. When prescribers utilize opioids for long-term, often life-long treatment of chronic pain, they are part of a large experiment unsupported by evidence of true efficacy. In fact, it is likely that the health problems associated with long-term use of opioids outweigh the expected benefits, which, to date, are unsupported by current research.

Studies have found that opioid therapy does not provide statistically significant improvements in physical functioning (Sjögren et al. 2010; Caldwell et al. 2002). Other studies have shown that patients who receive a placebo rather than an opioid for pain experience reduced pain (Bingel et al. 2011). The fact that patients receiving a placebo improved at all seems to have been overlooked by researchers. This group deserves greater attention by the medical community. If a group of patients with chronic pain can improve without being given any medication, further research is needed to understand this group and determine whether their results can be sustained and benefit more patients.

OPIOIDS FOR CHRONIC PAIN

The practice of using opioids on a long-term basis to manage chronic noncancer pain has presents many inherent challenges and risks for both physician and patients when using opioids to treat chronic pain conditions (Manchikanti et al. 2011). With studies documenting the dangers of extended use (Dunn et al. 2010; Couto et al. 2009; McNicol 2008) and a continued lack of evidence demonstrating the safety and effectiveness of long-term opioid therapy (Noble et al. 2008), the negative consequences are beginning to outweigh the benefits. As the number of opioid prescriptions increase, complications, including death, are rising (Paulozzi & Ryan 2006). Abuse of such drugs is also increasingly a problem; the President’s Office of National Drug Control Policy (ONDCP 2011) has recently issued a report entitled Epidemic: Responding to America’s Prescription Drug Abuse Crisis. When sedative hypnotics are also prescribed, the downward spiral of decreasing function is exacerbated (Ciccone et al. 2006). Additionally, in cases where chronic pain and substance abuse coexist, barriers to effective treatment increase and symptoms of both conditions exacerbate the other.

Current research is plagued with conflict of interest issues. A meta-analysis by Furlan and colleagues (2006) found that of the clinical trials included in their analysis, only 10% didn’t receive funding from or have an author affiliated with a pharmaceutical company. The majority of funding for opioid therapy studies comes from pharmaceutical companies or is provided for researchers affiliated with a pharmaceutical company. This has produced a natural bias that guides the specific areas of research conducted and has tended to create a lag for research conducted on alternatives to opioid therapy for chronic pain.

COMPLICATIONS FROM LONG-TERM USE OF OPIOIDS

Despite the perceived benefits (i.e., immediate pain relief), there are significant potential drawbacks to the use of opioids, which in some cases do not improve pain levels and cause a decrease in function. First, opioids can cause more sensitivity to pain, a phenomenon known as opioid-induced hyperalgesia (Ballantyne & Mao 2003). Second, tolerance develops and the dosage must be increased to be effective (Ballantyne & Mao 2003). Third, after continuous...
use of opioids for a period of time, patients become physically dependent on the drugs, causing withdrawal when the drugs are discontinued (Ballantyne & Mao 2003). Fourth, some patients begin to perceive emotional pain as physical pain and use their opioid medications to “chemically cope” (Passik et al. 2006). Fifth, many patients with chronic pain who take opioids have diminished, rather than improved function because of the side effects of these potent drugs. Sixth, addiction can develop in a subgroup of patients receiving opioids on a long-term basis.

Hyperalgesia

Opioid-induced hyperalgesia (OIH) may occur in some patients when opioids result in an individual becoming more sensitive to pain. Through repeated administration of opioids, the baseline nociceptive thresholds may diminish and cause increased pain sensitivity (Mao 2002). This phenomenon mimics many of the signs of tolerance and the two may be difficult to distinguish from one another (Ballantyne & Mao 2003). Mao stated, “apparent opioid tolerance is not synonymous with pharmacological tolerance, which calls for opioid dose escalation, but may be the first sign of opioid-induced pain sensitivity suggesting a need for opioid dose reduction” (Mao 2002). Mao goes on to state that “. . . repeated opioid administration could lead to a progressive and lasting reduction of baseline nociceptive thresholds, hence an increase in pain sensitivity. . . .” Patients who experience OIH have demonstrated a significant reduction in pain after opioid use is discontinued (Baron & McDonald 2006; Savage 1996; Brodner & Taub 1978). The prevalence of this phenomenon is not known, but in my clinical practice, it is common for patients to notice a decreased pain level.

In addition, patients who have become addicted to their medication have greater pain sensitivity than nonaddicted users (Compton, Charuvastra & Ling 2001; Ho & Dole 1979). Compton and colleagues (2001) found that patients receiving methadone maintenance experienced continued hypersensitivity and those who discontinued their use of methadone experienced a reduction in pain sensitivity.

The optimal dose of an opioid is in the lowest part of the dose response curve. If a dose is raised beyond that threshold, pain may substantially increase (Ballantyne & Mao 2003). The net effect of continuing opioid use in patients who experience hyperalgesia is an increase of the problem the medication was intended to treat. Further research is needed to determine what percentage of patients given an opioid medication experience hyperalgesia, which patients are experiencing this phenomenon, and what is the appropriate course of action if OIH is occurring.

Tolerance and Physical Dependence

Substance dependence in the Diagnostic and Statistical Manual, Fourth Edition (APA 2000) is defined as “a pattern of at least three of seven behaviors occurring over the past year.” Tolerance and physical dependence are two phenomena that develop in most people using opioids. Diagnosing opioid dependence can be difficult, however, and includes more than just the occurrence of tolerance and physical dependence. Many patients will dispute a diagnosis of “opioid dependence” or “addiction” by saying, “I’m only taking what the doctor prescribed.” But when asked if they have tried to reduce their usage on their own or if they gave up important activities while under the influence of opioids, they readily acknowledge having given up important activities because of their pain and/or because they were “too tired to go.” These patients also report wishing they could stop taking opioids, preoccupation with taking the medications, and recurrent unsuccessful attempts to cut down or quit. The answer to whether someone is dependent or addicted can be confounding diagnostically.

One way to address this issue with patients is to give them information and allowing them to make this determination for themselves (Pohl et al. 2009). For clinicians, the answer to the question of whether or not a patient is an addict in these cases might be: “It doesn’t really matter.” If a patient has problems with the drugs he or she is taking, that is, difficulty controlling, preoccupation with doses, or decreased function on the medication, then a reasonable solution might be to discontinue taking the medications under medical supervision while finding alternative ways to address chronic pain more effectively. Whether the individual is an addict or not becomes less important to the overall management of the patient.

Chemical Coping

Many patients perceive emotional pain as physical pain and attempt to treat both their physical as well as their emotional pain with opioids. This pattern of coping was first described as “chemical coping” by palliative care specialist Eduardo Bruera, M.D. and colleagues during their treatment of cancer patients (Kirsh et al. 2007). “Chemical copers” take medication and find that their marriage improves. The opioids give them energy for work, and help them to relax and go to sleep. Ultimately, these patients start using the medication in ways that it was not meant to be used. Soon physical pain and emotional pain merge and the patient begins treating both with medications.

When patients merge physical pain with emotional reactions they will experience an increase in pain with negative speculation about the significance of the pain and how much worse it is going to become (Litt et al. 2009). Unpleasant emotions intensify the perception of pain. Patients with chronic pain often try to avoid, resist, and overcome sensations that are uncomfortable. They anticipate the worsening of physical pain and become increasingly more miserable (Vlaeyen & Linton 2000). If opioids are used on a long-term basis, their temporary beneficial effect of diminishing physical and emotional
pain can ultimately lead to worsening of a patient’s overall well-being.

**Diminished Function and Side Effects**

Many side effects occur with chronic opioid medications, including constipation, nausea, sleep problems including apnea (Webster et al. 2008), decreased sexual function, loss of muscle strength and/or mass, as well as an increased risk of osteoporosis (Daniel 2008; Clark, Young & Cole 2006). The main goal of pain treatment should be to increase function. The use of opioids on a long-term basis often results in diminished function. This may involve impaired cognition, increased need to rest, fatigue, somnolence, decreased energy, and depressed mood.

**Co-occurring Pain, Substance Abuse and Addiction**

When pain and addiction co-occur, each feeds on the other and the negative consequences are interrelated and magnified. Savage (1996) has proposed that addiction has a number of consequences, namely depression, anxiety, functional disability, physical problems, and sleep problems. Chronic pain has all of the same consequences. If a patient has both diagnoses the consequences will interact and feed on each other in a negative symbiosis.

**PHYSICIAN PRESCRIBING GUIDELINES**

I will apply, for the benefit of the sick, all measures that are required, avoiding those twin traps of over-treatment and therapeutic nihilism . . .

Hippocratic Oath (Edelstein 1943)

When determining best-practice guidelines for prescribing, it is helpful to consider “what makes sense,” as well as to consider the benefits versus the risks of long-term opioid therapy for chronic pain. Schiff and Galanter (2009) have presented several valuable recommendations to consider when prescribing any medication: (a) think beyond drugs; (b) have heightened vigilance for adverse effects; (c) exercise caution and skepticism regarding new drugs; (d) share your agenda with patients; and (e) weigh longer term/broader effects (like decrease in function). Schiff and Galanter also talk about barriers to conservative prescribing, including time pressure. It’s easier to write a prescription for 120 pills than to see a patient every week. Incentives are also to be considered. For example, in managed care settings, income bonuses for prescribers are frequently linked to patient satisfaction and patients are unlikely to be satisfied (even though they are better served) if they do not automatically get their prescriptions refilled. Physicians should also consider how time management affects their prescribing practices. It may take the better part of an hour to explain to a patient why continuing to depend on opioids may not be the best course of action, and this will probably result in having an angry patient. Giving the patient the prescription they desire will take only a few minutes; it can be written and the physician can move on to the next patient.

When prescribing opioids, physicians should develop an “entry strategy” and have a conversation with the patient about the goals of treatment, what a successful trial would consist of, what might an unsuccessful trial look like, and what will be done if it’s unsuccessful (the “exit strategy”). If opioids are prescribed, patients should be monitored closely. When opioids are prescribed for chronic pain, there are a number of ways to screen for substance abuse prior to starting. These entry strategies should include screening patients’ urine samples routinely and randomly. Urine toxicology results indicating other than prescribed drugs will provide an early indicator that the patient may have trouble with opioids. The absence of the prescribed drug would also be cause for concern and would merit a discussion with the patient to ascertain whether the patient might be diverting or selling their medications.

Gourlay and Heit (2005) recommend using universal precautions as they have been used with infectious diseases when considering the use of opioids for chronic pain. They suggest treating all patients as if they have a potential for developing problems with long-term use of opioids. Screening for substance abuse and other high-risk conditions can be accomplished by using standardized screening tools such as the Screener and Opioid Assessment for Patients in Pain (SOAPP; Butler et al. 2008), Opioid Risk Tool (ORT), or Drug Abuse Screening Test (DAST) (Passik & Squire 2009).

Gourlay and Heit (2005) recommend that physicians monitor all patients on opioids by looking at “five A’s”: Analgesia: Is the patient getting pain relief? Affect: What is the patient’s mood? Are the patient’s Activities of daily living better or worse? What, if any, Adverse effects are occurring? Is the patient displaying any Aberrant medication-taking behaviors? There are behaviors that are suggestive but not diagnostic of problematic drug use such as hoarding drugs, requesting specific amounts of a drug, requesting a specific brand name drug, receiving prescriptions from other physicians, and unsanctioned dose escalations (Portnoy 1994). Aberrant behaviors which are more predictive include borrowing or stealing drugs, chewing a patch or slow-release tablets, multiple unsanctioned dose escalations, using illicit drugs, selling drugs, and having a negative urine screen for a prescribed drug; these should all be cause for significant concern about possible addiction (Portnoy 1994).

It would be unreasonable to take off in a plane that doesn’t have operational landing gear; likewise, physicians should therefore be prepared to utilize an exit strategy if necessary before starting a medication. Exit strategies include discussing what will happen if the drugs aren’t working. Proper strategies include being consistent, supportive, informative, and firm but nonjudgmental.
CONCLUSIONS

Clinicians, including prescribers, have an ethical responsibility to properly assess, monitor, and follow up with each patient who has chronic pain. Optimal treatment would be to only treat patients with opioids who are likely to do well on opioids. However, it is impossible to accurately assess and predict who is likely to truly improve and sustain this improvement while taking long-term opioids. Clinical experience treating patients with chronic pain and drug dependence shows that many who are given opioids to treat their pain develop addiction to these medications. Other patients experience serious problems from chronically using opioid medications, such as decreased function, side effects, and a tendency to chemically cope with life through the use of these drugs. These effects are not permanent, and it is possible for some patients to discontinue opioid medications with a resulting improvement in overall quality of life and function. Continued study of the phenomenon of opioid-induced hyperalgesia and chemical coping will enhance our understanding of these occurrences and their prevalence.

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