

Short Communication

Commentary: Long-Term Opioid Therapy vs. Serial Intraspinal Injections for Low Back Pain

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Received December 28, 2011; Accepted January 7, 2011

Low back pain (LBP) is a highly prevalent condition with significant health-related morbidity and a detrimental impact on society. There are several non-pharmacologic treatments for chronic LBP including physical therapy, aerobic exercise, and alternative treatments such as acupuncture. There are no studies that directly compare percutaneous spinal interventions to opioid therapy for LBP. It is unclear whether safe and high-quality healthcare will be achieved if the population of patients with chronic pain is steered towards chronic opioid therapy vs. procedural alternatives. More research is needed to elucidate the mechanism of action both of opioids and intraspinal steroid injections in chronic LBP. We argue that the safest and most patient-centered strategy to treat LBP is to maintain the current clinical guidelines until there are evidence-based guidelines to support an alternative treatment algorithm.

Key words: Low back pain, spine, opioids, epidural steroid injection

INTRODUCTION

Low back pain (LBP) is a highly prevalent condition with significant health-related morbidity and a detrimental impact on society. Chronic pain conditions, of which LBP constitutes a large proportion, cost an estimated \$61.2 billion per year in pain-related lost productive time in the United States (Stewart et al., 2003). Our discussion focuses on chronic LBP from degenerative spinal disorders.

There are several non-pharmacologic treatments for chronic LBP including physical therapy, aerobic exercise, and alternative treatments such as acupuncture. In addition, non-steroidal anti-inflammatory drugs, anticonvulsants, tricyclic antidepressants, and muscle relaxants are often used.

In spite of the fact that they do not modulate structural degeneration, intraspinal steroid injections and oral and transdermal opioid therapy can provide analgesia and functional benefits to patients with chronic LBP (Abdi et al., 2007; Deshpande et al., 2007).

Our recent meta-analysis on opioid and transdermal opioid preparations showed that these medications can have significant positive effects on the pain and disability associated with LBP (Nampiaparampil et al., 2011). All-cause mortality was low in the analysis. However, it was difficult to assess the overall efficacy and adverse effects of long-term opioid therapy because adverse effects influenced up to 28% of patients to withdraw from the original studies.

Our analysis of the effects of spinal steroid injections for pain included 8 high- and medium-quality studies comprising 814 subjects (Nampiaparampil et al., 2011).

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We also looked at 5 high- and medium-quality studies containing 654 patients for effects on function. We found that spinal steroid injections had a statistically significant short-term benefit in terms of reduction of pain and enhancement of function but no significant long-term benefit compared with control injections. Although the risks of spinal steroid injections appear to be low, there is controversy regarding whether they are useful in the short or long-term. This may be because of the different technical approaches that are often used to perform epidural steroid injections, including the interlaminar, transforaminal, and caudal approaches, as well as the variable use of fluoroscopy in the studies. It is also unclear whether the use of local anesthetic or saline in the control groups of these studies is appropriate, since spinal injections with those substances may also have therapeutic effects. The absolute contraindications to neuraxial spinal steroid injections include coagulopathy, infection, true allergy, or pregnancy. A relative contraindication is cognitive dysfunction.

In terms of other treatment approaches to low back pain syndromes, even anatomical correction through lumbar spinal surgery, does not represent a definitive endpoint to chronic LBP as evidenced by the 20-30% prevalence of “failed-back” syndrome (Manchikanti et al., 2001). Although multidisciplinary treatment approaches may be preferred, the number of patients in a “steady-state” of solely receiving serial spinal injections or long-term opioid therapy is likely increasing (Friedly et al., 2007). There are no studies that directly compare percutaneous spinal interventions to opioid therapy for LBP yet cost-control efforts designed to influence patients away from invasive treatment modalities are underway. We present here an argument that this shift towards non-invasive treatment options such as long-term opioid therapy may be premature.

DISCUSSION

Given the changing healthcare climate and recent efforts to control healthcare costs, more critical analysis has been performed on the utilization of lumbar spinal procedures. There were estimated increases of 271% for epidural steroid injections and 231% for facet joint injections between 1994 and 2001, and a corresponding increase in physician fees per injection

or denied powerful pain medications such as opioids because their pain is judged to be different in nature from cancer-related pain, or acute or postoperative pain. However, most study subjects with chronic LBP, as opposed to other chronic pain syndromes, do not

to Medicare from \$115 to \$227 (Friedly et al., 2007). This may have precipitated efforts by Medicare and other stakeholders to curtail the use of these procedures.

The direct costs of these procedures to Medicare have been publicized. What has been acquired with these expenditures has not been as well-advertised. Studies have shown that interventional spinal procedures can improve pain and function but more information is needed about long-term outcomes (Abdi et al., 2007). Critics argue that these interventions have not demonstrated a corresponding decrease in the prescription of opioids or the incidence of spinal surgery for LBP. These are surrogate markers for analgesia and may not be valid measures. In terms of utilization of healthcare resources, patients’ employment of these treatment modalities may reflect physician recommendations; providers must write prescriptions and surgeons must offer surgery. In addition, these treatment arms have substantially different risk/benefit profiles and are not mutually exclusive. The risks of procedural interventions are bleeding, infection, post-dural puncture headache, nerve injury, and paralysis. The risks of opioid therapy include sedation, nausea, pruritus, constipation, dependence or addiction, drug-related overdose, and diversion.

For pain management, physicians may experience up to 40% cuts over the next decade. Continued reductions in reimbursement for specialty services geared towards LBP such as spinal interventions may steer medical trainees into other specialty choices and can precipitate a delay in access to interventional and other pain management services for LBP. This, in turn, may persuade Primary Care providers to employ relatively more accessible treatment options such as chronic opioid therapy. However, patients being prescribed controlled substances typically have to be reevaluated every 30 days. If the percentage of patients receiving this long-term therapy increases significantly, there will be more patients using more follow-up visit time slots. This may decrease the number of available new consult time slots, and may lead to delays in care and an overall increase, rather than decrease, in pain-related morbidity.

According to the World Health Organization (WHO), increasing medical use of opioids is an indication that pain management is improving (World Health Organization, 1996). Proponents of opioid therapy for chronic LBP argue that patients should not be delayed consistently report pain relief from opioid therapy. This is in contrast to patients with cancer-related pain, the population for which the WHO “pain ladder” recommendations were initially designed. There is no uniformly accepted clinical practice guideline for, or

specialty society consensus about opioid therapy in chronic LBP. Because of the pressure from patients, providers, and society to actively address pain, patients with acute exacerbations of chronic LBP will most likely be escalated to chronic opioid therapy. If procedural alternatives are discouraged, there may be a massive initiation of patients into long-term opioid treatment.

This can be seen in other existing models. Compared to private insurance companies, Medicaid's reimbursement schedule discourages physicians from performing fluoro-guided intraspinal injections. Opioids represent a cheaper treatment alternative. Between 2004 and 2007, 1668 persons died from prescription opioid-related overdoses in the state of Washington; 45.4% of deaths were among Medicaid enrollees. Studies suggest that opioid prescribing rates among Medicaid enrollees are at least 200% higher than for people with private insurance. In addition, opioid dose per prescription was higher among Medicaid vs. non-Medicaid patients (Centers for Disease Control and Prevention, 2009). It is possible that Medicaid enrollees have a higher prevalence of psychiatric comorbidities but those conditions are not systematically treated with opioid therapy.

If the purpose of this shift is to provide cost-effective medical care, it is not clear that that goal will be attained over the long-term. Americans, who comprise 4.6% of the global population, already consume 80% and 99% of the world's opioid and hydrocodone supplies respectively (Manchikanti et al., 2008). Between 1997 and 2006, there was an increase in the amount of prescribed hydrocodone (244%), morphine (196%), oxycodone (732%), and methadone (1177%) perhaps due to the increase in the use of prescription opioids for non-malignant pain, which has correlated with an increase in opioid-related morbidity and mortality (Manchikanti et al., 2008). This morbidity and mortality may continue to increase if opioid therapy becomes pervasive. In terms of diversion, 55.7% of a population ≥ 12 years of age who had admitted to using prescription opioids for non-medical purposes stated that they had received these drugs from a friend or relative for free and 19.1% reported obtaining the drug from a doctor (Manchikanti et al., 2008).

The lifetime prevalence of LBP is currently estimated at 70-85% (Andersson, 1999). Improvements in mortality through emerging technologies may lead to consequent increases in age-related morbidity from degenerative spinal disorders. Patients may experience intermittent episodes of LBP that progressively increase in frequency and duration, which may be related to progressive structural degeneration. It is unclear whether safe and high-quality healthcare will be

achieved if this large population is steered towards chronic opioid therapy vs. procedural alternatives.

More research is needed to elucidate the mechanism of action both of opioids and intraspinal steroid injections in chronic LBP. For example, patients report substantial relief from epidural injections of both steroids and local anesthetic but the mechanism by which these drugs relieve low back and lower extremity pain is incompletely understood. Most clinical studies of intraspinal injections were performed without fluoroscopy, thus complicating the issue of establishing their efficacy. Without image guidance, the targets may have been misidentified. In a study of lumbar epidural steroid injections-, in 25.7% of cases, loss of air pressure resistance (which typically signifies epidural needle placement) was encountered while the needle tip was outside the spinal canal in the posterior back soft tissues as demonstrated by confirmatory fluoroscopic imaging (Bartynski et al., 2005).

CONCLUSION

The alarming trend of discouraging spinal procedures and encouraging chronic opioid use may fail to improve healthcare quality, to facilitate access to pain management treatment services, or to curtail costs in the long-term. For patients contending with chronic LBP, percutaneous spinal interventions represent a safe and effective treatment option. Critics argue that there is not enough evidence to support the efficacy of intraspinal injections, and that therefore, the use of these procedures should be limited. Others advocate for increased availability of opioid therapy. We argue that the safest and most patient-centered strategy to treat LBP is to maintain the current clinical guidelines until there are evidence-based guidelines to support an alternative treatment algorithm.

ACKNOWLEDGEMENT

Dr. Nampiampil reports serving on a medical advisory board for Prostrakan Pharmaceuticals. There are no other financial disclosures or conflicts of interests to report.

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