

It Is Time to Consider Non-Pharmacologic Alternatives to Opioid Analgesics for Treating Chronic Pain

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What is this Article About?

In a recent article by Goesling et al. these investigators reported that prescription opioid analgesic use often continued after surgery. It is alleged that more than 20 million people in the USA are addicted to prescription opioid medication. The Center for Disease Control (2016) emphasized the importance of finding alternatives to opioid medication for treating chronic pain. In a pilot study involving a high-intensity cold laser device (Phoenix thera-lase [Dallas, TX]), we were able to successfully treat three patients who had become addicted to prescription opioid-analgesic medication after a major operation.

This Editorial describes why it is important to consider using so-called 'alternative' therapies like high-intensity cold lasers rather than simply relying on opioid (narcotic) analgesics to treat patients with chronic pain. In the new clinical practice guidelines for the management of back pain published in the *Annals of Internal Medicine* (Qaseem et al. 2017), the authors endorsed the use of noninvasive treatments like cold laser therapy for treatment of acute, subacute and chronic low back pain.

Introduction

Recently, the Center for Disease Control conducted a review of the benefits and harms, as well as the costs, of using opioid analgesics for the treatment of chronic pain [1]. In light of the growing opioid epidemic in his country, these authors emphasized the importance of increasing the use of non-opioid analgesic techniques for chronic pain management. Of interest, Goesling et al. [2] recently reported that for many patients taking opioid analgesics before joint replacement surgery, as well as some opioid-naïve patients undergoing arthroplasty procedures, opioid use persisted after surgery despite the absence of joint pain due to opioid dependency. Although opioid-related side effects are well-known, including nausea, vomiting, constipation, ileus, bladder dysfunction, pruritis, sedation, visual hallucinations, and ventilatory depression, there are growing concerns regarding long-term physical dependence and addiction liability with continued opioid use after surgical procedures.

It has also been reported that prolonged use of opioids is also associated with an increased risk of more serious complications, including opioid use disorder, overdose, and death [3]. Interestingly, no study of prolonged opioid use has ever demonstrated a long-term (≥ 1 year) benefits for the users. An epidemiological study by Erikssen et al. [4] involving chronic pain patients treated with opioids for 5 yrs provided compelling evidence that opioids were not a panacea for chronic pain. In fact, the patients' quality of life failed to improve despite escalating doses of opioids over the 5 yr study period. These authors concluded that "it is remarkable that opioid treatment of long-term/chronic non-cancer pain does not seem to fulfill any of the key outcome treatment goals, namely, pain relief, improved quality of life and improved functional capacity." Interestingly, some countries do not permit opioid analgesics to be used in the management of chronic, non-cancer related pain, and do not prescribe opioid containing analgesic medication when patients are discharged home after surgery.

In 2014, in excess of 10 million people in the United States were reportedly using prescription opioids for non-medical reasons, and

approximately 2 million people met diagnostic criteria for a substance use disorder involving prescription opioids, the highest number of individuals considered to have an opioid addiction since the late 19th century [3]. Currently, 4 out of 5 individuals initiating heroin use report starting with a prescription opioid. According to Stat News, overdose deaths due to opioids rose 11% in 2015, to 52,404 (<https://www.statnews.com/2016/12/09/opioid-overdose-deaths-us>). By comparison, the number of people who died in car crashes was 37,757, and gun deaths (including both homicides and suicides), totaled 36,252. Sadly, the public is now paying a huge price for ignoring the warnings regarding opioid use and abuse and we are now facing the worst addiction crisis America has ever observed (Calabresi M. The price of relief: Why America can't kick its painkiller problem. *TIME* magazine, 2016). In a more recent article in *TIME* magazine, the author offered a new paradigm for treating opioid addiction: namely to give more drugs (Park A. A new paradigm for opioid addiction: more drugs *TIME* magazine, October 2016). The 'new' drug treatment which was being recommended for treating opioid dependency is suboxone (a combination of buprenorphine [a weak partial opioid agonist] and naloxone [an opioid antagonist]). Perhaps it is time to seriously consider the use of 'alternative' non-pharmacologic therapies rather than simply giving more drugs!

As someone who has long-advocated for the use of non-opioid analgesics as part of a multimodal analgesic regimen for treating pain to reduce the side effects associated with opioid analgesics [5], the consequences of the widespread reliance on opioid-containing medication for managing acute and chronic pain are not surprising [6]. Non-pharmacologic techniques have been previously described in the literature for the treatment of acute and chronic pain (e.g. acupuncture, electrostimulation) [7]. However, these 'alternative' therapies have failed to achieve widespread acceptance in the medical community because of issues related to both weak marketing efforts and low reimbursement by the third party payors to the healthcare providers administering these treatment modalities. Cold laser therapy is another widely studied non-pharmacologic modality for treating a variety of acute and chronic pain syndromes [8]. Although both low level and more powerful high intensity cold laser therapies have been reported to produce beneficial effects in clinical trials (and systematic reviews), this therapy has similarly failed to achieve widespread clinical acceptance. We recently evaluated a high intensity cold laser (Phoenix thera-lase

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System, LLC [Dallas, Texas USA]) for treating patients who received opioid-containing oral analgesics after discharge from the hospital following a major orthopedic surgical procedure [9]. In a pilot study involving three otherwise healthy patients who were continuing to use prescription oral opioid-containing medications for treating residual pain >12 mo after their operation, we utilized high-intensity laser therapy (HILT). After receiving a series of 9-12 cold laser treatments with the 42 Watt Phoenix theralase (with a wavelength of 1275 nM) to the painful post-surgical area over a 3-4 week period of time, these patients were able to eliminate their use of opioid analgesic medications without experiencing acute withdrawal side effects, while also resuming their normal activities of daily living. On follow-up at 1-2 months after their last laser treatment, all three patients remained 'opioid-free'. These anecdotal findings are subject to potential patient bias and the well-known 'placebo-effect' of a novel pain treatment modality. Therefore, it will be important to conduct larger-scale prospective, randomized, double-blinded, controlled studies to verify these preliminary findings.

Perhaps it is time to consider the use of 'alternative' non-pharmacologic therapies like cold laser therapy rather than potentially compounding the management of chronic pain by giving even more drugs. In the new clinical practice guidelines for the management of back pain published in the *Annals of Internal Medicine* [10], the Clinical Guidelines Committee of the American College of Physicians endorsed the use of noninvasive treatments like cold laser therapy for treatment of acute, subacute and chronic low back pain. If a simple, safe and effective non-invasive non-pharmacologic therapy can reduce dependence on oral opioid-containing medications in the post-discharge period after surgery, it could also prove to be a highly effective approach to treating patients with chronic pain not responding to non-opioid analgesic medications. More importantly, novel approaches like cold laser therapy may represent a cost-effective alternative to chronic

use of opioid analgesics in the future. Finding a reliable non-opioid analgesic alternative for managing subacute and chronic pain would be extremely valuable in dealing with the current global opioid epidemic.

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