

Exploring medical research articles for a conclusion on the use of opioid analgeses...

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While it is undoubtedly a blessing to be armed with such a wealth of information in regards to healthcare, such a staggering volume of literature may have one wondering how to start learning more about a particular treatment. The following pages explore ten different peer-reviewed articles focusing on the use of opioid analgesics, prednisone therapy, and the role that the CYP450 system plays in drug metabolism. This information will subsequently be used in the construction of a teaching plan for the case study patient- a typical, elderly male who is navigating the oftentimes overwhelming and confusing system of healthcare in contemporary America.

The first article to be reviewed examined the adherence patterns of older adults when it comes to the self-administration of opioid pain medications as well as the reasons this particular population may take such drugs in the first place (Chang, Wray, Sessanna, & Peng, 2011). The article also discusses correlations between patient adherence and intensity of pain as well as the interferences that this pain may have on a patient's daily activities (Chang et al., 2011). The study concluded that nearly half of all participants described taking less opioids than were prescribed to them, while two of the participants reported taking more than the prescribed dosage (Chang et al., 2011). The study found no remarkable association between a patient's reported pain intensity and adherence to the prescribed regimen, however, patients who reported less adherence were also more likely to report that pain interfered with sleep (Chang et al., 2011). The article comments several times on how it is important for prescribers to discuss opioid adherence not only with younger patients but with the elderly as well (Chang et al., 2011).

The second article discussed the harms and effectiveness associated with long-term administration of opioids for chronic pain (Chou et al., 2015). The authors had reviewed both observational studies as well as randomized trials which involved adults being prescribed opioids on a long-term basis for the management of chronic pain (Chou et al., 2015). The studies under review had compared long-term opioid therapy to other regimens such as those using strategies of risk mitigation, alternative opioid dosing strategies, and placebos (Chou et al., 2015). This review of the literature concluded that the management of chronic pain with the use of opioids was associated with a higher risk of sexual dysfunction, heart attack, bone fractures, opioid abuse, and overdose (Chou et al., 2015). The authors assert that there is insufficient evidence to establish the effectiveness of long-term treatment with opioids for improving function and chronic pain (Chou et al., 2015).

The third article reported that corticosteroid-induced osteoporosis (CIOP) is oftentimes undertreated, despite the availability of appropriate and effective treatments (Duyvendak, Naunton, Roon, & Brouwers, 2011). The authors aimed to assess providers' likelihood of prescribing appropriate treatments for CIOP (Duyvendak et al., 2011). The authors also attempted to identify any potential barriers to the employing of preventative treatments for those patients who are receiving long-term corticosteroid therapy (Duyvendak et al., 2011). 55% of the responding providers correctly answered knowledge-based questions, and 69% responded correctly to case scenario questions (Duyvendak et al., 2011). The surveys also suggested that prescribers had a poor understanding of the use of bone mineral density determination (Duyvendak et al., 2011). The authors listed several barriers to the

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implementation of appropriate treatments including an idea, held by many general practitioners, that the responsibility of ordering preventive treatment belongs to a different doctor as well as a reluctance to order such treatments for patients who are already taking multiple drugs (Duyvendak et al., 2011).

The fourth article explores the screening, treatment, risk factors, incidence, and pathophysiology of certain conditions induced by glucocorticoid treatment, including cardiovascular events, hypertension, diabetes, and weight gain (Fardet & Fève, 2014). The article also discusses the possible prevention of such adverse effects by means of using glucocorticoid receptor modulators to target glucocorticoid receptors (Fardet & Fève, 2014). The authors describe the growing concerns related to glucocorticoid-induced adverse effects as a result of the introduction of very effective treatments and improved prognoses for those suffering from conditions which require the administration of glucocorticoids (Fardet & Fève, 2014). The article concludes with a statement relating to the importance of screening, preventing, and treating these adverse effects, particularly when considering their frequency and cost (Fardet & Fève, 2014).

Article five discusses ways in which healthcare personnel can work with their patients in order to increase compliance and adherence to prescribed opioid regimens (Graziottin, Gardner-Nix, Stumpf, & Berliner, 2011). The authors list a number of factors which are believed to influence patient adherence including attitudes held by loved ones in regards to opioids, frequency of dosing, presence of depression, side-effects, realistic or unrealistic expectations of pain relief, and knowledge of disease state (Graziottin et al.,

2011). The authors assert that addressing these factors will increase the likelihood of achieving positive patient outcomes (Graziottin et al., 2011). The article also discusses the importance of addressing opioid side-effects, such as constipation and nausea, in a proactive fashion as doing so will also help improve patient adherence to the prescribed regimen (Graziottin et al., 2011). The article also lists involving the patient in the treatment plan, decreasing dose frequency, and fostering a desirable doctor-patient relationship as important factors when it comes to promoting adherence to opioids (Graziottin et al., 2011).

The sixth article explores the beneficial effects that modified-release prednisone can have on a patient suffering from rheumatoid arthritis as well as some of its interactions with other drugs and complications resulting from its long-term use (Keating, Hennes, & Yang, 2014). Benefits of this medication which the authors mention include the ability to administer it at bedtime, helping to counteract nighttime increases in proinflammatory cytokines that contribute to the manifestation of symptoms; its effectiveness in decreasing stiffness in the morning; good tolerability; and its cost-effectiveness when compared to intermediate-release prednisone (Keating et al., 2014). The article also lists a number of complications which can ensue as a result of long-term therapy such as Cushing's disease, hyperglycemia, and stunted or delayed growth in pediatric patients (Keating et al., 2014). In addition to using modified-release prednisone with caution in patients with GI abscesses, the article also instructs to regularly monitor eye function, blood pressure, laboratory results, and body weight in patients receiving long-term therapy (Keating et al., 2014). The authors list many potential drug

interactions of prednisone such as those occurring with concurrent use of cardiac glycosides, laxatives, antidiabetic agents, salicylates, estrogens, ACE inhibitors, and magnesium and aluminum antacids (Keating et al., 2014).

The seventh article explores a nurse's role in the promotion of safe opioid use as well as what the specific safety concerns with this family of medications are (King, 2015). The author reminds the reader that the risks of opioids extend beyond the walls of healthcare facilities and into neighborhoods, communities, and the population at large (King, 2015). The article discusses the opioid collaborative, a campaign focusing on the safe use of opioid pain medications (King, 2015). The author encourages healthcare personnel to work with team members of their local collaborative, speak with colleagues in regards to what measures can be taken in order to improve the safety of opioids, and to lead by example in promoting medication safety (King, 2015). The article points out that many of the opioids' sedating effects can be magnified by certain conditions such as obesity, obstructed airway, and patient fatigue (King, 2015). The article also comments that while falls, delirium, and respiratory depression are amongst the less common side-effects of opioids, they are nonetheless some of the most serious (King, 2015).

Article eight explored the prevalence of concurrent use of opioids with a number of other medications including antidepressants, non-opioid analgesics, hypnotics, and benzodiazepines in patients with non-malignant chronic pain (Mellbye, Svendsen, Borchgrevink, Skurtveit, & Fredheim, 2012). Of the population under review, 1.2% had been considered persistent

opioid users based on their prescription level and prescription pattern (Mellbye et al., 2012). Furthermore, 60% of these individuals were also prescribed benzodiazepines or related hypnotic drugs in volumes which suggested regular use (Mellbye et al., 2012). Additionally, of the persistent opioid users, 62% were concurrently given one or more analgesics that were non-opioid, 33% had been given anti-seizure medications, and 47% had also been prescribed an antidepressant (Mellbye et al., 2012). The article points out that these figures are contrary to current guidelines, thus suggesting that these patients are at an elevated risk of succumbing to opioid abuse disorders (Mellbye et al., 2012).

The ninth article discusses the importance of considering each opioid analgesic's unique parameter as well as focusing on the patient's individual pain characteristics (O'Connor, 2013). Some of the opioids examined throughout this article include codeine, tramadol, oxycodone, morphine, fentanyl, buprenorphine, methadone, and hydromorphone (O'Connor, 2013). The article also explores the potential drug-drug interactions which can ensue for a patient taking opioid therapy (O'Connor, 2013). The author reminds the reader that each opioid regimen must be customized to the individual patient's unique needs so as to mitigate the possibility of adverse effects and to increase positive treatment outcomes (O'Connor, 2013). The article also reports that for patients who experience side-effects which are intolerable or whose current opioid regimen is ineffective, an overall assessment must be conducted prior to evaluation of pain (O'Connor, 2013).

The final article to be included in this review explores the effects of pharmacogenomics and the CYP450 system in relation to psychotropic medications being taken by the child and adolescent patient (Turner, 2013). The article reports that the CYP450 system is responsible for metabolizing more than 30 different classes of medications (Turner, 2013). Furthermore, the vast majority of psychotropic drugs are also metabolized by this mechanism (Turner, 2013). The author describes how a significant amount of medication intolerances, medication-related deaths, and adverse drug events can be attributed to the CYP450 system (Turner, 2013). The author explains how a particular patient's drug response and risk of experiencing a drug-drug interaction is ultimately contingent on which CYP450 isoenzyme becomes altered (Turner, 2013).

Clearly, there exist a considerable amount of education and support indicated for the case study patient. Although this patient is likely to feel quite dismayed at times, the assistance of the inter-professional team will likely prove to be a great asset during his time of role-change and life transition.