

Opioids for the Treatment of Pain: The Risk of Treating a Multivariate Symptom

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The use of opioids has a long cultural and societal history and has played a unique role in advancing both medicine and the treatment of pain. Over the last two decades or so, prescribers have compromised the role of opioids in the treatment of pain to such an extent that it has become a national crisis. Each year, opioids have been causing a record number of deaths and negatively affecting those individuals' quality of life because of dependence. In many clinical situations, the use of an opioid is necessary for proper patient care, despite the potential risk of dependence that is now of national concern.¹ That risk is best assessed and mitigated by clinicians who have a comprehensive understanding of the clinical pharmacology of opioids and possess the skills and willingness to properly assess an individual's pain relief needs by considering alternative medications and pain management treatments and/or strategies. The American College of Clinical Pharmacology (ACCP) has previously published a policy statement on the treatment of opioid addiction.² However, the choice of an opioid is the second step in the clinical process. This policy statement addresses the first step in the clinician's rationale for choosing an analgesic, especially the appropriateness of an opioid, for the treatment and/or management of pain. It is the clinician who can properly assess the patient's pain, whether anticipated by a medical procedure or presented as pain the patient is experiencing without visible tissue damage, along with its length of time that precedes the choice of an analgesic.

Pain is a multidimensional experience encompassing a number of physiological systems mediated by neuronal tracks subserved by various neurotransmitters. Pain is composed of affective, cognitive, motivational, and discriminative components. It is this complexity that can confound its treatment, allowing it to respond to a number of different classes of medications. Pain is defined by the International Association for the Study of Pain (IASP; www.IASP-pain.org) as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described

in terms of such damage." The definition incorporates the multiple components. The appropriate clinical use of opioids requires an assessment of the patient that often exceeds simply writing the prescription. *The one necessary component to accomplish this assessment is often the least available, and that is time with the patient.*³ In view of the decreased personal interaction between clinician and patient in contemporary medical practice, one unfortunate result is the inadvertent prescribing of more potent medications than may actually be required to compensate for the difference. It may be partly out of convenience to the prescriber to write a prescription for an excess of opioids to avoid the patient's returning to complain of unrelieved pain. An unintended consequence for the provider may be in patient reviews that may further complicate the prescribing judgment of the prescriber.⁴

Pain is a complex symptom, and the line between acute and chronic pain is not always distinct. There are many physiological differences between acute and chronic pain, but the principal difference is that chronic pain involves the central nervous system through input of the autonomic nervous system. This also allows for the many different drug classes to be considered in its treatment and management. Acute pain, or pain that is induced in a controlled manner such as a surgical procedure, can be managed more easily than pain resulting from a chronic condition. Prescribing opioids for acute pain requiring a central component allows the treatment to have a beneficial effect in reducing patient anxiety and promoting restful sleep. Short-term opioid therapy may be appropriate for bouts of acute pain, particularly if the surgery results in a large amount of tissue damage. It is sound practice to have the patient

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return to the office frequently to give the provider a chance to further assess the patient's level of pain, as well as to assess the benefit:risk of further opioid treatment.

Acute pain is physiologically useful as a warning sign to the body, accompanied by rapid nerve conduction and usually causal with relatively minor tissue injury, well defined, and of brief duration and the treatment well defined. In contrast to acute pain, chronic pain involves the activation of the autonomic nervous system and is frequently accompanied by other comorbidities such as anxiety and depression. Chronic pain manifests itself with little or no tissue damage and slow nerve conduction of little biologic value; its treatment is multidisciplinary and not well defined, with depression accompanying the anxiety because of the pain. Coping mechanisms may be insufficient for the patient, thereby further fatiguing the central and autonomic nervous systems' response to the chronic pain and making the clinical outcome more complex and difficult to manage.

Assuring the appropriate use of opioids involves many aspects of the clinician's education and experience. It begins with the appropriate clinical and basic pharmacology education in medical school, where the foundation of the physician's analgesic knowledge base is formed. Academic institutions need to take the lead in implementing ways to strengthen the core knowledge of pharmacology in the area of pain and pain management. Pharmacology is an essential core course providing the information needed to treat patients. There is presently concern in the health care professions across medicine, dentistry, and nursing about the level of pharmacology being taught.^{5,6} Vertical or horizontal integration of a science such as pharmacology first requires a core knowledge base to even discuss the integration at a clinical level, and any other interpretation under the guise of exposing students to an early clinical experience will produce shortcomings in prescribing by the practitioner. There is a recognized difference between pharmacology and therapeutics. The primary goal should be to strengthen the science of pharmacology to support and enhance the therapeutics for improved patient treatment and management of pain. A strictly therapeutic approach to pain is primarily directed toward acute pain; chronic pain with all its physiological components has multiple clinical manifestations requiring more time and a thorough understanding of the state of the patient by the clinician.

It is recommended that the reduction of opioid use by clinicians may require various partnerships among concerned organizations such as the ACCP and the IASP. Here the synergy lies in a better clinical understanding of the patient's pain from the IASP to choose the most appropriate medication as suggested by the ACCP. For economic reasons, the rush to shorten

the clinical encounter while trying to balance quality is an equation of failure and needs to be reassessed. Schools need to allocate more time to teaching the nuances of pain for the clinician to consider alternative medications. Nonsteroid anti-inflammatory drugs and acetaminophen when used appropriately to maximize their pharmacokinetic availability have been shown to be effective substitutes for opioids in many clinical situations. Increasing the clinician's sensitivity to the overprescribing of opioids, mostly out of convenience, can contribute to decreasing the national problem of dependence. Proper disposal of opioids by all involved is an integral component to reducing opioid availability.

In addition, the patient now has the responsibility of knowing how to dispose of the medication under patient-centered care. Federal guidelines for proper drug disposal include (http://www.deadiversion.usdoj.gov/drug_disposal/index.html):

- Follow any specific disposal instructions on the prescription drug labeling or patient information that accompanies the medicine.
- Take advantage of community drug take-back programs that allow the public to bring unused drugs to a central location for proper disposal (www.deadiversion.usdoj.gov/drug_disposal/takeback/index.html).
- If no disposal instructions are given on the prescription drug labeling and no take-back program is available in your area, throw the drugs in the household trash following these steps. (1) Mix the drugs with an undesirable substance, such as used coffee grounds or kitty litter. (2) Place the mixture in a sealable bag or can to prevent leakage.

The science of pharmacology provides the clinician with a depth of knowledge to treat multivariate symptom such as pain. Applying pharmacokinetic principles to optimize nonopioid medications is essential for maximum efficacy. Having a good patient relationship adds to the patient believing in what the clinician has prescribed may be additive to the efficacy of the medication. Shared decision-making adds responsibility on the patient to properly dispose of the medication.

Pain relief is one of the primary objectives of medicine and is the one symptom that brings even the most reluctant patient in for treatment. Prescribing wisely is the culmination of a professional education in which the understanding of pain, to its fullest extent, requires an adroit clinician, one who is cognizant of the integration of physiology, neuroanatomy, and pharmacology. The role of academic medicine is more important than ever to provide a foundation to properly assess and treat a patient in pain. The new paradigm

in health care of transparency, health care literacy, and self-determination to support patient-centered care may have a positive influence in prioritizing the science of pharmacology in academic institutions. It is paramount that there not only be an evaluative clinical balance in considering the risk/benefit ratio but that for certain medications, such as the opioids, the benefit should more than outweigh the risk to be in the best interest of the patient.

References

1. Centers for Disease Control and Prevention. Increases in drug and opioid-involved overdose deaths – United States, 2010-2015. December 30, 2016; 65(50-51):1445–1452.
2. Rusch LM; for the Public Policy Committee of the American College of Clinical Pharmacology. A reality check: the need for a deeper understanding of opioid abuse treatment options: a policy statement from the American College of Clinical Pharmacology. *J Clin Pharmacol*. 2015;00(0):1–4.
3. Dugdale, DC, Epstein, R, Pantilat, SZ. Time and the patient-physician relationship. *J Gen Intern Med*. 1999;14(suppl 1.):S34–S40.
4. Ramhmdani, S, Bydon, A. The “patient experience”: a quality metric to be aware of. *Spine J*. 2016;16(11):1290–1291.
5. Wiernik PH; for the Public Policy Committee of the American College of Clinical Pharmacology. A dangerous lack of pharmacology education in medical and nursing schools: a policy statement from the American College of Clinical Pharmacology. *J Clin Pharmacol*. 2015;55(9):953–954.
6. Curro FA, Mozaffari MS, Stevens RL, Warner, W. The trajectory of pharmacology education in dentistry: is a course correction needed? *Compend Contin Educ Dent*. 2016;37(8):508–511.