THE ROLE OF DENTISTRY IN ADDRESSING OPIOID ABUSE

ACADEMY OF GENERAL DENTISTRY WHITE PAPER

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Introduction

The use and abuse of opioid medications in the U.S. is due to multiple factors.

Opioid and alternative analgesics are occasionally used in dentistry for the management of acute post-operative pain. Alternative analgesics are often over-the-counter (OTC) drugs including acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), which are effective in the management of mild to moderate pain, including the initial management of pain.[1]

The National Academies of Science, Engineering and Medicine (NASEM), formerly the Institute of Medicine (IOM), noted opioids "can be safe and effective for acute postoperative pain, procedural pain, and patients nearing the end of life who desire more pain relief," when "used as prescribed." However, the IOM had also "acknowledge[d] a serious crisis in the diversion and abuse of opioids and a lack of evidence for the long-term usefulness of opioids in treating chronic pain."[2] In dental settings, opioids are prescribed for acute pain indications.

Between 1999 and 2010, sales of opioids quadrupled and dosage calculated in morphine milligram equivalents (MME) per person increased over seven-fold from 96 MME per person in 1997 to 710 MME in 2010.[3] Fatalities solely from opioid abuse exceed the combined fatalities from suicide, motor vehicle crashes, and cocaine and heroin use.[4] Rates of drug overdose deaths involving synthetic opioids continue to increase in the U.S.[5]

In recent years, illicit opioid use has eclipsed legal opioid prescription use. [6] Nonetheless, for some opioid naïve patients, the introduction of these medications may eventually lead to the illicit use of opioids.[7,8] Opioid abuse has risen to epidemic levels in the United States.[9] This issue is being addressed by federal and state governments, private industry, health practitioners, and other stakeholders.[10]

In dental settings, opioids are prescribed for acute pain indications. Over a decade ago, some publications and some public health officials purported that the dental profession was a significant contributor to the opioid crisis. The purpose of this white paper is to examine the veracity of these claims through a review of the contemporary literature on the role of dentistry on the opioid abuse epidemic. The development of organizational policy based upon this review is also presented.

Background of Prescription Opioid Issues of Abuse and Misuse

The United States has experienced an epidemic of abuse and misuse of opioid medications. Over the past two decades, knowledge of factors leading to addiction were not widely identified or disseminated. Research is progressing on these topics. Nonetheless, it is incumbent on the health care community to ensure appropriate use of opioid medications.[11]

One of the Food and Drug Administration's (FDA) charges is to assess the safety and effectiveness of pharmaceuticals. In an effort to facilitate transparency, the agency compiled a timeline of their activities relating to the misuse and abuse of opioid medications. From 1911 to the 1990s, opioid medications were predominantly used for the management of acute pain and chronic cancer pain.[12]

OxyContin® was approved by the FDA on December 12, 1995. Abuse of the formulation was occurring by 2001 as the formulation could be broken, chewed, or crushed for rapid release delivery. Reports of overdose and death from prescription drug products, particularly opioids, increased dramatically. In January 2003, the FDA sent the manufacturer of OxyContin, Purdue Pharma L.P., an extensive warning letter about minimizing serious safety risks and promoting the drug for uses beyond proven safety and effectiveness claims.[13]

In 2007, the FDA Amendments Act granted the FDA additional authority to require certain post-market measures be implemented to further drug safety, i.e., the Risk Evaluation and Mitigation Strategies (REMS). Other federal agencies, including the Drug Enforcement Agency (DEA) and the Substance Abuse and Mental Health Services Administration (SAMHSA), launched various programs to educate the public and assist in efforts to prevent opioid abuse.

In addition to labeling changes and post-marketing surveillance requirements, abuse deterrent formulations were slowly introduced. After more than a decade of problems with opioid formulations, the FDA in 2016 developed a comprehensive action plan to reassess the agency's approach to opioid medications.[14]

The U.S. Congress has also investigated the issue and has examined how the prescription drug industry's marketing practices affected sales, prescribing patterns, continuing medical education (CME) accreditation agencies, and state medical board policies.

Pharmacies

While the use and abuse of opioid medications is a national issue, there are notable sections of the country with more severe and complex problems. For example, in the state of West Virginia, during a six-year period, drug wholesalers shipped 780 million opioids to pharmacies within the state. That number equates to more than 400 pills for every person living in West Virginia. One pharmacy in Mingo County received nine million hydrocodone pills in two years. In retrospect, the West Virginia Board of Pharmacy failed to enforce appropriate regulations to audit pharmacies dispensing high volumes of opioids.

Pain clinics, –so-called "pill mills"– located in Michigan, Florida, and other states, served no legitimate medical purpose.[15,16,17] These clinics charge customers cash payments in return for narcotics. In many ensuing court cases, most prescriptions in this environment were found to be medically unnecessary.

State Lobbying

A 2016 investigation by the Center for Public Integrity and the Associated Press revealed that state lobbyists funded by a coalition of pharmaceutical companies and allied groups were instrumental in deterring state legislatures from enacting limitations on prescriptions of opioids.[18] Drug manufacturers adopted a state strategy to include hundreds of lobbyists working behind closed doors to weaken measures for more stringent opioid prescription requirements.

The use and abuse of opioid medications in the U.S. is due to multiple factors. Congressional investigations were initiated to determine how marketing practices affected sales, prescribing patterns, continuing medical education (CME) accreditation agencies, and state medical board policies.[19]

Substance Abuse

Safeguards enacted by dentists have decreased the incidence of opioid prescribing as well as the opportunity for most patients to become addicted to opioids. Prescription Drug Monitoring Programs (PDMPs) at the state level assist with improved prescribing practices and help protect patients at risk.[20] If patients or their health care providers, including dentists, realize that they have a substance abuse issue, they should seek immediate interventions that will support their full and complete recovery.

State Requirements for Continuing Education on the Prescribing of Opioids

Dentistry is regulated at the state level and most states require continuing education on the prescribing of opioids as a condition of licensure. Mandatory education initiatives should be directed by state agencies, not federal regulatory agencies since mandatory federal education on opioid prescribing would be duplicative of state efforts and not specific to dentists' prescribing practices. As an extra safeguard, the majority of states have enacted strict limitations or impose guidelines on the number of opioids a clinician can prescribe for a specific surgical procedure.[21]

Review Methods

PubMed, resources by the United States Centers for Disease Control and Prevention (CDC), and a broader Google search were employed to retrieve contemporary manuscripts addressing opioid prescribing patterns and practices. Primary citations in this white paper have intentionally been limited to 1) only manuscripts dated within the last 12 years and 2) only those that focus on opioid prescribing within dentistry. Additional manuscripts were retained as general references for clinical background information on opioid and alternative analgesics, and dosage conversion metrics between varying opioids. Given that the intent of this paper was to survey current literature in an effort to assess the role of dentistry to the extent necessary to derive an organizational policy, rather than to produce a clinical study, a formal systematic review process was not followed.

Findings

Number of Prescriptions:

An initial study using 2009 data attributed 8% to 12% of all opioid prescriptions as being written by dentists.[22] Dentistry has shown consistent decreases in opioid prescribing since 2012, and the volume of opioid prescriptions written by dentists continues to decline.[23,24] Pain from most dental procedures can be controlled with a combination of acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), obviating the need for opioids.[25,26,27]

Prolonged/multiple prescriptions:

The literature suggests opioid addiction and abuse may be more likely affiliated with prolonged or repeated prescriptions than with one-time prescriptions. "Patients consuming opioids regularly for more than a week may develop some degree of dependence."[28,29] Thus, contrary to prescription patterns of general practitioners and specialists in medicine, dentists are far less likely to provide refills or multiple prescriptions to the same patient.

Dosage and duration:

Higher dosages of opioids may be more likely to result in addiction and abuse than lower dosages, although both carry risk.[30,31] Most general dentists that prescribe opioids provide only single-fill prescriptions of 10-20 doses to be taken over the course of two-to-five days.[32]

Considering a prescription of four-to-six doses per day (every six hours or every four hours) of hydrocodone/acetaminophen at 5 mg / 300 mg as an example, the maximum daily dosage of hydrocodone would be 20 to 30 mg of hydrocodone. Given the approximate 1:1 ratio between dosage of hydrocodone and MME, this would correlate to at most 20 to 30 MME/day, over the course of up to 5 days, with no refills. In contrast, a study of the Veterans Health Administration (VHA) patients found that patients that died of opioid abuse were prescribed an average of 98 MME/day, with a duration of 90 days of continuous prescription with an allowance for up to a 30-day gap for obtaining a refill. [33,34]

The Centers for Disease Control and Prevention (CDC) states 20-50 MME/day as relatively low dosages. While the CDC has identified higher dosages of opioids as primarily associated with higher risk of overdose and death, it also cautions such relatively low dosages should not be ignored.

Where prescriptions are obtained:

Among persons aged 12 or older in 2009-2010 who used pain relievers non-medically in the past 12 months, 55% obtained pain relievers from a friend or relative for free.[36] Among the remaining 45%, 11.4% bought them from a friend or relative (which was significantly higher than the 8.9% from 2007-2008), and 4.8% essentially stole them from a friend or relative. However, only one in 6 or 17.3% indicated that they received the drugs through a prescription from one doctor, while only 4.4% received pain relievers from a drug dealer or other stranger, and 0.4% bought them on the Internet, with no significant changes from 2007 to 2008.[37]

However, "among those who reported getting the pain reliever from a friend or family member for free, 80 percent reported that the friend or family member had obtained the drugs from one prescriber."[38] Based upon the results of a 2010 survey of dentists in West Virginia, "When asked about doses of IR [immediate release] opioids that dentists suspect patients have left after a third-molar extraction, 41 percent of dentists expected patients to have leftover drugs. It is unknown, however, whether dentists informed patients about how to secure medication so that it was not diverted or how to dispose of unused medication."[39]

Procedure Type:

Opioids are more commonly prescribed for extractions than other procedures. Patients having complex rather than simple extractions are more likely to receive an opioid prescription.[40] One group of researchers categorized procedure types into low, moderate, and high to index pain levels. Patients with high-pain procedures were more likely to fill initial opioid prescriptions.[41]

General Dentists vs. Specialist Prescribing:

Specialists are more likely to prescribe opioids than general dentists.[42] The dental prescribing of opioids more often occurs for oral surgeries, oftentimes third-molar extractions.[43]

AGD Policy Statements

In light of the above findings, the Academy of General Dentistry (AGD) adopts the following as the policy of the AGD on the role of dentistry in opioid abuse:

- The dosage and duration of each prescription, and the number of multiple or refill prescriptions to the same patient, must be considered in any assessment of the effect of dentistry upon the epidemic of opioid addiction in the United States.
- Assessments of the causation of opioid addiction based solely upon the number of prescriptions written results in an overestimation of the dental profession's effect on opioid addiction.
- It is nonetheless incumbent upon the profession of dentistry and all dental associations to support and further the education of dentists, dental team members, and the public to recognize the indicators of propensity and likelihood of opioid addiction, and to understand, consider, and utilize alternative pain management strategies.
- General dentists continue to decrease their prescribing of opioids to treat their patients' pain, preferring to select combinations of acetaminophen and NSAIDs.

Conclusion

While there is no doubt that opioid abuse is a serious and ongoing epidemic in the United States, among healthcare providers, dentists rank among the lowest in prescribing multiple or refill opioid prescriptions to the same patient. They also rank among the lowest in the dosage allowed in each opioid prescription. Studies suggest that these latter factors are of far greater significance in assessing the likelihood of opioid dependence or death from opioid abuse.

Despite lower dosages and shorter durations of prescription, surveyed dentists believed that patients occasionally have "leftover" opioids. Studies suggest that a majority of opioid abusers obtain their drugs from friends or family with these "leftover" prescriptions. Therefore, although assessments based solely upon the number of prescriptions exaggerate the effect of dentistry on opioid abuse, it is nonetheless incumbent upon dentistry and dental associations to support and further the education of dentists, dental teams, and the public on opioid addiction, and to understand, consider, and use alternative pain management strategies, including non-opioid analgesics, when appropriate and effective.

Resources

U.S. Surgeon General's Call to End the Opioid Crisis

https://www.nejm.org/doi/full/10.1056/NEJMp1612578

FDA Fact Sheet- FDA Opioids Action Plan

U.S. Food and Drug Administration. Center for Drug Evaluation and Research Progress Update on Opioid Action Plan. November 15, 2016. https://www.nejm.org/doi/full/10.1056/NEJMp1612578

CDC Guideline for Prescribing Opioids for Chronic Pain- U.S., 2016

https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm

Calculating Total Daily Dose of Opioids for Safer Dosage

https://www.cdc.gov/opioids/providers/prescribing/pdf/calculating-total-daily-dose.pdf

AGD Comment on CDC Prescribing Opioids for Acute Pain- U.S., 2022

https://www.agd.org/docs/default-source/advocacy-papers/agd-opioid-prescribing-4_11_22.pdf?sfvrsn=62f7bc9f_0

Prescription Drug Monitoring Programs

https://www.cdc.gov/drugoverdose/pdf/Leveraging-PDMPs-508.pdf

Royal College of Dental Surgeons of Ontario: The Role of Opioids in the Management of Acute and Chronic Pain in Dental Practice

https://az184419.vo.msecnd.net/rcdso/pdf/guidelines/RCDSO_Guidelines_Role_of_Opioids.pdf

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