THE ROLE OF DENTISTRY IN ADDRESSING OPIOID ABUSE

ACADEMY OF GENERAL DENTISTRY WHITE PAPER

Introduction

Opioid and non-opioid analgesics are utilized in dentistry for the management of post-operative pain. Non-opioids, including acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), are effective in the management of mild to moderate pain, including the initial management of pain.[1]

The Institute of Medicine (IOM) has 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 has 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]

Sales of opioids have quadrupled between 1999 and 2010, and dosage calculated in morphine milligram equivalents (MME) per person has 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]

Opioid abuse has risen to epidemic levels in the United States. This issue is being addressed by federal and state governments, private industry, health practitioners, and other stakeholders. In recent years, some publications have purported the dental profession to be a significant contributors to the opioid crisis. The purpose of this white paper is to examine the veracity of these claims by 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. Nonetheless, it is incumbent on the health care community to ensure appropriate use of opioid medications.

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[5] of their activities relating to the misuse and abuse of opioid medications. From 1911 to the 1990's, opioid medications were predominantly used for the management of acute pain and chronic cancer pain.

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.

In 2007, the FDA Amendments Act granted the FDA 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 forestall 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.

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 the West Virginia. One pharmacy in Mingo County received 9 million hydrocodone pills in 2 years. In retrospect, the West Virginia Board of Pharmacy failed to enforce appropriate regulations to audit pharmacies dispensing high volumes of opioids.

Pain clinics– the so-called "pill mills"– located in Michigan, Florida, and other states, serve no legitimate medical purpose. 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[6] 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. 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[7] have been initiated to determine how marketing practices affected sales, prescribing patterns, continuing medical education (CME) accreditation agencies, and state medical board policies.

Review Methods

Databases including PubMed and Medline, as well as resources provided by the United States Centers for Disease Control and Prevention (CDC), and a broader Google search, were employed to retrieve contemporary manuscripts addressing the opioid epidemic. Given the recent boom in opioid distribution, only manuscripts dated within the last twelve years and that specifically addressed dentistry were included as primary resources. However, additional manuscripts were retained as general references for clinical background information on opioid and non-opioid 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:

Recent studies attribute 8%[8] to 12% of all opioid prescriptions are written by dentists.[9] Dentists are the leading prescribers when the metric is the percentage of number of prescriptions to persons aged 10 to 19 years, accounting for over 30% of the number of these prescriptions.[10]

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."[11]

According to Volkow et. al. (JAMA, 2011), "On average, across all physician specialties included in this analysis, 56.4% (44.8 million) of opioid prescriptions were dispensed to patients who had already filled another opioid prescription within the past month (FIGURE 2)." However, as illustrated by FIGURE 2 below, this number is in stark contrast to prescription patterns of dentists, with repeated prescriptions accounting for less than 30% for prescriptions provided by dentists.[12]

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.

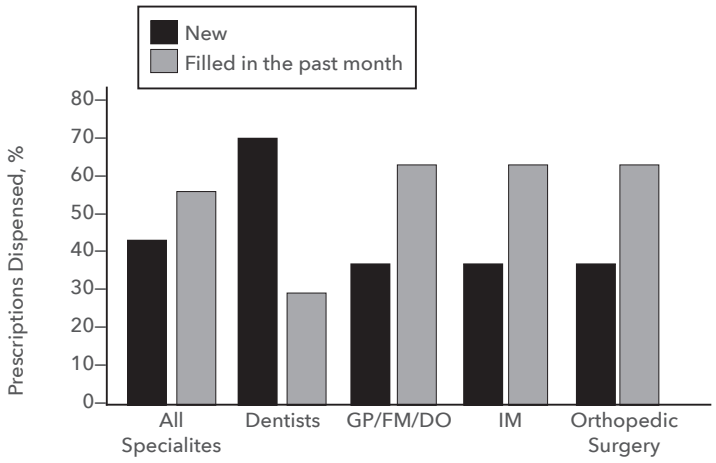

Figure 2. New vs Continuing or Switch/Add-on Opioid Prescriptions Dispensed by US Retail Pharmacies as a Function of Specialty, 2009
Shown are unprojected data. Prior prescriptions (dispensed within the past month) could be from the same or a different prescriber or speciality. GP/FM/DO indicates general practitioner/family medicine/osteopathic physicians; IM, internal medicine

Dosage and duration:
Higher dosages may be more likely to result in addiction and abuse than lower dosages, although both carry risk.[13] Most general dentists that prescribe opioids provide only single-fill prescriptions of 10-20 doses to be taken over the course of 2 to 5 days.[14]

Considering a prescription of 4-6 doses per day (every 6 hours or every 4 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-to-1 correlation 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.[15]

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.[16]

Where prescriptions are obtained:
"Most abusers report they obtained prescriptions on their own or medications from friends and relatives that had been prescribed opioids."[17]

> 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[18] 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.[19]

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."[20] 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."[21]

AGD Policy Statement

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 staff 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.

Conclusion

Opioid abuse is an ongoing epidemic in the United States. The number of opioid prescriptions written by dentists rank among the highest of health care professionals. However, dentists rank among the lowest in prescribing multiple or refill opioid prescriptions to the same patient, and also in the dosage of 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.

On the other hand, despite lower dosages and shorter durations of prescription, surveyed dentists believed that their patients 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 utilize alternative pain management strategies, including non-opioid analgesics, when appropriate and effective.

Resources

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

FDA Fact Sheet- FDA Opioids Action Plan

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

Prescription Drug Monitoring Programs

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

Pennsylvania Guidelines on the Use of Opioids in Dental Practice

New Jersey Law Limits Opioid Prescriptions

National Alliance for Model State Drug Laws

Pain Management: Alternative Therapy

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4. Id.
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7. U.S. Senate, March 28, 2017. https://www.hsgac.senate.gov/media/minority-media/breaking-opioid-manufacturers-are-subject-of-new-mccaskill-led-wide-ranging-investigation, accessed April 4, 2017.
8. Volkow ND, McLellan TA. Characteristics of Opioid Prescriptions in 2009. JAMA. 2011 April 6; 305(13): 1299–1301. doi:10.1001/jama.2011.401. ("Overall, the main prescribers were primary care physicians (general practitioner/family medicine/osteopathic physicians) with 28.8% (22.9 million) of total prescriptions, followed by internists (14.6%, 11.6 million), dentists (8.0%, 6.4 million), and orthopedic surgeons (7.7%, 6.1 million).")
9. Denisco et. al. Prevention of prescription opioid abuse: The role of the dentist. JADA 2011;142(7):800-810. (citing Rigoni GC. Drug Utilization for Immediate- and Modified Release Opioids in the US. Silver Spring, Md.: Division of Surveillance, Research & Communication Support, Office of Drug Safety, Food and Drug Administration; 2003).
10. Volkow et al. ("For patients aged 10 to 19 years, dentists were the main prescribers (30.8%, 0.7 million), followed by primary care (13.1%, 0.3 million) and emergency medicine physicians (12.3%, 0.3 million).")
11. Becker et al.
12. Volkow et al.
13. CDC, "Calculating Total Daily Dose of Opioid for Safer Dosage"
14. Denisco et. al., at p. 803
15. Bohnert AS, Logan JE, Ganoczy D, Dowell D. A detailed exploration into the association of prescribed opioid dosage and overdose deaths among patients with chronic pain [published online January 22, 2016]. Med Care. doi:10.1097/MLR.0000000000000505.
16. Id.
17. Volkow et al., at p. 1.
18. Substance Abuse and Mental Health Services Administration. Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. http://www.samhsa.gov/data/NSDUH/2k10NSDUH/2k10Results.pdf, page 25.
19. Manchikanti et al., at ES22
20. Denisco et al., at p. 802
21. Denisco et al., at p. 803