



Knowledge among Dentists about the usage of Opioid analgesics in Dental Practice

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ABSTRACT

The treatment of pain is very common in dental practice. Analgesics is the safest way to relieve pain. Conventional analgesics are known as opioids and nonopioids, although the old words "narcotics" and "non-narcotics" continue to be used interchangeably. Dependence and resistance are well recognized characteristics of daily use of opioid analgesics, but this does not automatically hinder use in palliative care. The dentist should have a clear knowledge in prescribing opioid drugs to the patients. To assess dentists regarding knowledge, attitude and opinion on prescribing opioid analgesics in dental practice. A close ended questionnaire comprising of 10 questions regarding knowledge, precautionary measure, indication, guidelines in prescribing opioid analgesics in dental practice will be distributed to 100 dental practitioners. Data was tabulated and analysed by computing the percentage response for each question. Majority of the practitioners (83%) were aware and some of them (17%) were unaware regarding the usage of opioid analgesics in dental practice. Most of the respondents in this study knew the background of opioid drugs, indication, contraindication and their usage in dental practice. However, dentists should be cautious in prescribing any form of drugs to the patient.



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INTRODUCTION

Pain is characterized as an unpleasant sensory and emotional experience associated with real or possible harm to tissues. It's not just a normal feeling. It is affected by behaviors, temperament, values and social influences, and may affect mental and emotional health. Since their arrival on earth, it

has followed humans. Pain is a subjective symptom that suggests the need to act urgently and is usually coupled with other subjective feelings such as frustration, anxiety and unpleasantness. The perception of the origin and severity of the pain is a result of various patient attributes. There are many medical factors that have an effect on the perception of pain by the medical, such as age, gender, physiological factors, neuropathic and other disorders, history of substance abuse, and individual human psychological profiles (Fainsinger *et al.*, 2010). This is the world's leading cause of morbidity justifying the increasingly rising need for secure and reliable pain treatment (Langford, 2006). Pain has repeatedly been described as the most specific seeking and receiving dental care and the unavoidable result of any dental treatment as it is a characteristic of inflammatory oral diseases and infections, which are the primary oral diseases impacting humans (Hargreaves and Abbott, 2005).

Tooth pain is generally described as an unpleasant

feeling connected to the teeth or associated structures. This is a common qualitative grievance of dental patients despite various procedures for operation and dental diseases. Dental pain is one of the most likely reasons for patients seeking urgent dental care in the United States (Kegeles, 1961). Odontogenic pain is a dynamic cascade cycle that starts with dental tissue damage and is followed by interconnected neuronal stimuli due to neurovascular, neuroinflammatory and physiological reactions (Kissin, 2010). Pain management is thus an important task and responsibility of dentists, and the proper range and use of analgesics should enable the provision of this task with optimal health and effectiveness (Azodo and Umoh, 2013).

Analysis is considered to be one of the most effective drug groups in dental practice, given the therapeutic effectiveness, cost-effectiveness, prescribing rate and safety characteristic of the product category. Based on this degree of significance in dental clinical practice, there are various approaches to developing treatment protocols and recommendations for managing dental pain with a view to rationalizing the usage of analgesics. Dental pain control in clinical settings is a nuanced aspect of dental treatment which needs high-level knowledge of analgesic pharmacokinetics and the application of fair use criteria.

The practitioner can choose opioid and nonopioid analgesics to prevent patient pain. Dental pain due to periapical and pulpal disease is known to be the most severe and is a danger sign and subjective assessment of altered periapical tissue and pulp dentin tissue. Those two can be distinguished from each other, and this interpretation has an effect on the correct choice of analgesic drugs.

Based on the clinical nature of dental pain, it may be categorized as acute or chronic and with or without malignancies. Acute pain lasts from many hours to many days and is typically a reflective symptom with several health conditions such as dental trauma, inflammatory disorders of dental and other associated tissue structures, including temporomandibular and masticatory muscle injury.

Chronic pain can be prevalent over several months and can continue for years if primary dental treatment is not used. Dental pain is a dynamic clinical condition that involves a highly skilled dentist to identify and identify the primary cause of pain (Murray, 2009).

The large proportion of clinical uses for analgesic medications are linked to acute and chronic dental pain, adjuvant preoperative and postoperative pain (Hargreaves et al., 2011).

Opioid analgesics in dentistry

Opioid, also identified as opioids, may be used to treat mild to extreme acute pain. That include medications such as morphine, oxycodone, hydrocodone, codeine, etc. Opioid use has risen in dental practice over the last few decades. Nonetheless, when drug treatment is required, opioid analgesics are not typically the first option, but should be seen as an alternative in particular cases (Lino et al., 2019). Those involve cases where acetaminophen or a non-steroidal anti-inflammatory drug (NSAID) is contraindicated. The World Health Organization maintains that opioid analgesics are alternative medications to certain first-choice non-opioids in situations where they may not function adequately. Opioids do not have anti-inflammatory effects, so non-opioid analgesics (e.g., NSAIDs) could be a safer first option for pain relief (Moore et al., 2016). Researchers also show an rise in the incidence of opioid dependency and a related increase in opioid-related deaths. Opioids function as agonists in opioid receptors, changes the nervous system's responsiveness to noxious stimuli. These can be absolute agonists, partial agonists, or mixed agonists / antagonists (Okunseri et al., 2015). The mode of action of opioids is not perfectly known, although certain opioid receptors were found in the brain and spinal cord that are thought to be involved (Dionne et al., 2006).

Clinicians are also concerned with the risk of addiction, that may hinder prescribing and use, contributing to insufficient pain treatment (Brunton and Goodman, 2007). This can be due to uncertainty about the definitions of alcohol dependency and substance dependency. Patients who routinely ingest opioids for more than a week can acquire some level of dependency. These can require phase-in of the dose to prevent symptoms of withdrawal. Drugs may not, however, cause addiction. This is a compulsive pattern of conduct in which an patient tends to pursue medications for results that are considered to be desirable and not genuine medical problems. Addictive behavior is a medical disorder that can be exacerbated by a medication, but is not a pharmacodynamic property. Opioids should be used with caution in patients who show addictive personality. Notwithstanding common assumptions, all drugs have the same amount of pain relief provided they are administered at equivalent doses (Becker and Phero, 2005). Negative impacts generally related to opioid involve sedation, pruritis, sweating, dizziness, nausea, vomiting, constipation, and respiratory failure (Muir, 2009). Prescription drugs are intended to be used in the management of pain, such as recovery from

trauma or post-operative surgery, chronic pain, active-phase treatment for cancer, curative and end-of - life care In comparison, prescription opioids include a warning label of the dangers of addiction, violence and abuse, respiratory distress, accidental consumption, neonatal opioid withdrawal syndrome due to extended opiate withdrawal relation with cytochrome P450 3A4 antagonists and risks in accompanying use of benzodiazepines or other CNS depressants (Weddle, 2018). Reasonable drug treatment would aim to choose pain-control or pain-relief medications while reducing potential adverse reactions. Any medical systems around the world have repositories that make it possible to track and help compare the use of different prescription drugs. These details on the delivery of drugs help the recognition of the prescription medication pattern followed by health care providers (Maughan et al., 2016; Pinheiro et al., 2017).

Holding all of these in perspective, a survey was conducted to determine the awareness , perception, practice, suggestion, contraindications of dentists about the use of opioid analgesics in dental practice. In addition, the results of this research will be integrated to recommend interventions for the potential use of opioid analgesics.

MATERIALS AND METHODS

A questionnaire consisting of 10 multiple choice/answer format was designed for the dentists regarding their knowledge, opinion, usage, precaution on the use of opioids in dental practice. The survey was conducted among 100 dental practitioners from Saveetha Dental College and Hospitals. The survey also asked the clinicians to provide their demographic data such as the name, age, sex and year of study. Datas were analysed in percentage by computing the responses for each question and tabulated as follows. [Table 1]

RESULTS AND DISCUSSION

83% of dental practitioners have agreed that opioids are used for treating moderate to severe pain. 76% of the respondents said that NSAIDS should be avoided in patients taking warfarin. 72% of participants answered that opioids have the risk of addiction. Hydrocodone (60%) was the most commonly used opioid analgesic followed by followed by oxycodone (13%), methadone(9%), morphine(8%), propoxyphene(6%) and codeine (4%) (Figure 1). 42% of practitioners are prescribing opioids whenever required and 56% never prescribed opioids in their dental practice. 51% of practitioners prescribe opioids for major surgical procedures involv-

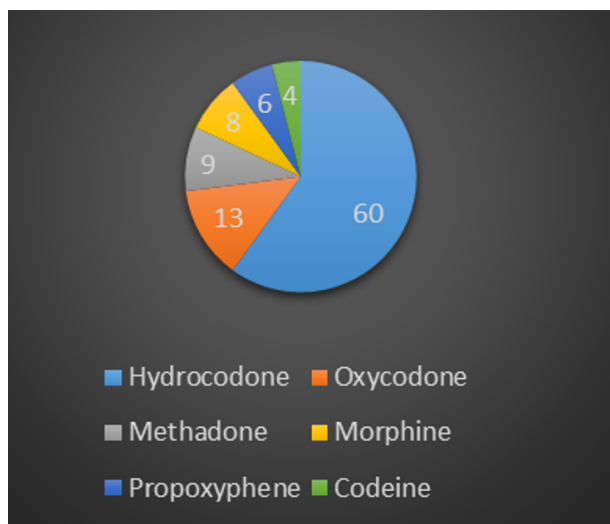


Figure 1: Commonly used opioid analgesic

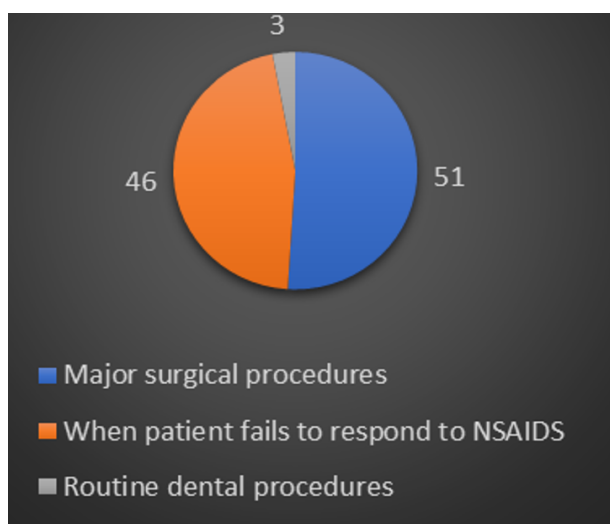


Figure 2: Prescription for opioids

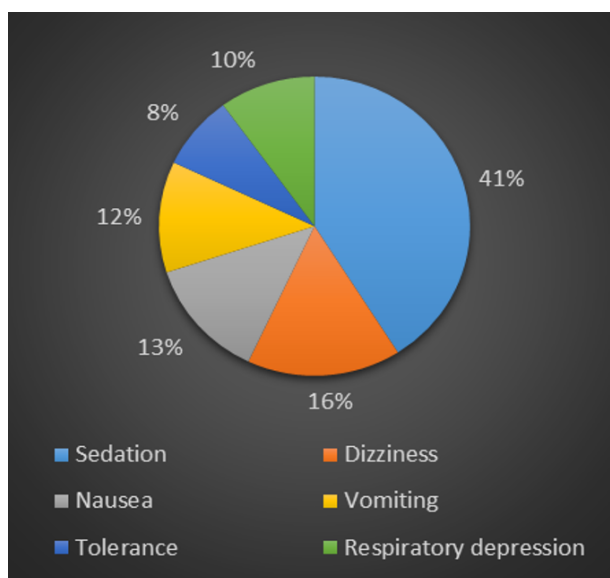


Figure 3: Common side effects of opioids

Table 1: Responses of the practitioners to the questionnaire.

Questions	Maximum Response	Minimum Response
1. Do you think opioids are used for treating moderate to severe pain?	Yes- 83%	No- 17%
2. Do you think NSAIDS should be avoided in patients taking warfarin?	Yes-76%	No-24%
3. Do you think opioids have the risk of addiction?	Yes-72%	No-28%
4. Which is the most commonly used opioid analgesic?	Hydrocodone-60%	Codiene-4%
5. Do you prescribe opioid analgesics in your practice?	Yes-44%	No-56%
6. Opioid analgesics are prescribed mostly when?	Major surgical procedures-51%	Following routine dental procedures-3%
7. What is the most common side effect of opioid analgesic?	Sedation-41%	Respiratory depression-8%
8. Do you think NSAIDS are more beneficial when compared with opioids?	Yes-79%	No-21%
9. What happens when opioids are used in combination with NSAIDS?	Increases the therapeutic effect-69%	Decreases the therapeutic effect-10%
10. Do you follow American Dental Association (ADA) and Centers for Disease control and Prevention (CDC) guidelines for prescribing opioids?	Yes-71%	No-29%

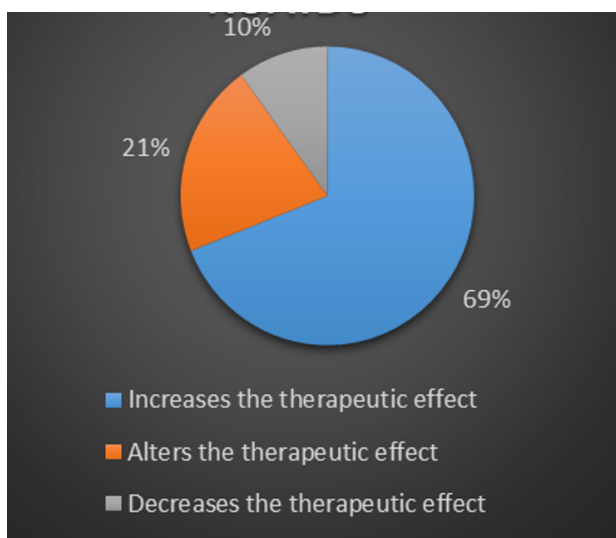


Figure 4: Interaction of opioids with NSAIDS

ing soft tissue and bone, 46% when patient fails to respond to NSAIDS and 3% after routine dental procedure (Figure 2). 41% of participants thought sedation was the most common side effect followed by dizziness(16%), nausea(13%), vomiting(12%), tolerance(10%), respiratory depression(8%) (Figure 3). 79% of practitioners agreed that NSAIDS are beneficial comparing opioids. 69% of dental practitioners said that opioids increase the therapeutic effect when combined with other drugs and 21% thought it alters the therapeutic effect and 10% thought combination decreases the therapeutic

effect of the drug (Figure 4). 71 % of practitioners follow ADA and CDC guidelines for prescribing opioid analgesics.

The study findings have shown that most dentists have good knowledge of the impact of opioid analgesics and its effective use and drawbacks in dental practice. Some of the physicians oppose NSAIDS in patients taking warfarin. Distinct findings were obtained from the study , which found that NSAIDS show significant interactions when it is used with anticoagulant and antiplatelet activity of warfarin and clopidrogel, resulting in an increase in their effects and an increased risk of bleeding. No other NSAIDS have been shown to have a major effect on warfarin metabolism to date (Phillips, 2000).

As in this study, most practitioners believed that opioid triggers addiction and similar findings were obtained in a survey that found that effective opioids analgesics were available but seldom used, and that physicians were ignorant of pain control due to unfounded fear of addiction (Palermo and Lambert, 2000). In another research (Berry and Dahl, 2000), recent recommendations have highlighted the need to initiate, organize and track treatment in such a way as to maximize the beneficial effects of opioid therapy and reduce the risks associated with violence, dependence and diversion.

60% of the practitioners said that hydrocodone was a widely used opioid. It is similar to the study which found that hydrocodone-based opioids accounted

for the majority (62.3 per cent) of US dental opioid prescriptions, followed by codeine (23.2 per cent), oxycodone (9.1 per cent) and tramadol (4.8 per cent). In the current survey, 51 per cent of practitioners agreed that opioid analgesics were needed for major procedures. Similar study also reported that procedures such as orthognathic procedures, facial trauma, resection of tumors that can not be controlled by NSAIDs alone require opioid analgesics (Suda *et al.*, 2019).

79 percent of dental professionals prescribe NSAIDS for opioid analgesics. This is close to the ADA statement: "Dentists should accept nonsteroidal anti-inflammatory analgesics as first-line care for acute pain relief."

Controversially, a study in the United States has shown that dentists recommend and prescribe opioids over nonsteroidal anti-inflammatory medications in greater doses and longer than required to relieve dental pain (Baker *et al.*, 2000).

69% practitioners say that opioids increase the therapeutic effect when used in combination with NSAIDS. It is similar to a recent systematic overview. The formulation of 400 mg ibuprofen and 1000 mg acetaminophen was far more efficient than every opioid-containing medication and also was associated with reduced risk of adverse effects (Saloner *et al.*, 2018).

The study conducted by Ortiz *et al.* (2012) is ambiguous, not all opioid-NSAID, opioid-acetaminophen, or NSAID-acetaminophen formulations are clinically effective in all instances. The combination of weak opioids, such as dextropropoxyphene, with acetaminophen does not greatly enhance pain relief relative to acetaminophen alone (Ortiz *et al.*, 2012). This study certainly has its own limitations. As the subjects were asked regarding their experiences in their practice over a wide frame of time, memory and subjective bias could have been possible. Hence, dentists should be conscious about the mechanism, benefits, combination with other drugs and risks of the opioid analgesic in the management of pain.

CONCLUSION

Majority of the dental practitioners were aware regarding the use of opioid analgesics in dental practice. It is always better to avoid opioid analgesics in a dental setup unless and until its usage is required or when other drugs failed to elicit its potential effect or when increased efficiency is required.

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Conflict of Interest

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