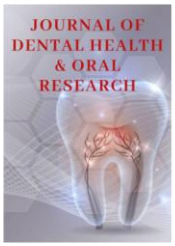

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Short Communication

Effects of Cannabis on IV Sedation and Technique for Implant Placement Under IV Sedation

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Abstract

Marijuana usage continues to increase in popularity as more states legalize recreational usage. As part of a patient evaluation, it is important to elucidate social history, which may include recreational marijuana usage.

Keywords: Cannabis; Implant Placement; Oral and Maxillofacial Surgery; Marijuana

Introduction

Marijuana usage continues to increase in popularity as more states legalize recreational usage. As part of a patient evaluation, it is important to elucidate social history, which may include recreational marijuana usage. At Temple University Hospital Oral and Maxillofacial Surgery Clinic, many patients need extractions or other procedures (such as oral biopsies or implant placement) and elect for intravenous sedation. Sedation is a delicate balance of patient safety versus patient comfort during a procedure. This article seeks to analyze some of the effects of marijuana usage on the efficacy of intravenous sedation in an outpatient clinic setting [1].

Marijuana affects patients through its mechanism of action on the Endocannabinoid System, which contains specific ligands, G-protein coupled receptors, neurotransmitters, and enzymes that produce the cannabis effect. Patients who use marijuana will experience an increase in heart rate, long-lasting conjunctival congestion, euphoria, drowsiness, short-term memory and concentration impairment, and reduced cognitive skills. All these physiological changes can impact the effectiveness of sedation. The cardiovascular effects of marijuana are related to its activation of the sympathetic nervous system and inhibition of the parasympathetic nervous system. These effects lead to an increased heart rate, an increase in left ventricular contractility, and increased cardiac output. The strong parasympathetic response may lead to arterial hypotension and bradycardia. Prolonged marijuana use has been associated with severe cardiovascular disorders such as malignant arrhythmias, sudden-onset atrial fibrillation, coronary spasm, sudden death, cerebral hypoperfusion, and stroke [2].

The cerebrovascular effects of cannabis use are ischemic strokes. Ischemic strokes and transient ischemic attacks are more common than hemorrhagic strokes in cannabis users. Cannabis effects the respiratory system. When smoked, cannabis can lead to high concentrations of carcinogenic chemicals and irritants into the airways and lungs. In chronic marijuana users, there has been an increase in hyperactive airways. Marijuana use in the preoperative period has been associated with postoperative airway obstruction, including pharyngeal and uvular edema.

Additionally, marijuana interferes with temperature regulation in a patient as well as coagulation. Chronic marijuana exposure has demonstrated decreased body temperature on patients, perioperative hypothermia. Hypothermia can lead to shivering in patients in the perioperative period. Shivering has been shown to increase heart rate, hypoxemia, oxygen consumptions, oxygen

delivery, and myocardial ischemia and acidosis. Cannabis has also been shown to interfere with platelets and coagulation. Cannabis changes the platelet membrane phospholipids leading to decreased platelet count and increase platelet aggregation. Patients with cannabis in their system may be prone to increased bleeding during the perioperative period due to this effect.

Cannabis shares common mechanisms of actions to several of the intravenous anesthetic agents used in clinic. Endocannabinoids modulate the Gamma-Aminobutyric Acid (GAGA) receptors. In randomized controlled trials, patients who are marijuana smokers have required increased doses of propofol for induction of general anesthesia. This increase in the need for propofol for induction can be translated over to sedations in clinic. Some studies have shown a synergistic effects on acute and chronic pain management with combination of opioids and marijuana, but the data has not been clear. More data and controlled trials need to be undertaken in order to fully understand marijuana's effects on anesthesia. A study by Gangwani, et al., demonstrated no significant difference in vital signs or anesthetic requirements between marijuana and non-marijuana users, yet some of their data seems to point to potentially increased need for anesthetic medications for marijuana users. Perhaps a larger sample size would be needed to achieve significant data points.

At Southeastern PA Oral and Maxillofacial Surgery (SEPOS) Clinic, patients who are marijuana users generally require more IV sedation 3 medications. When using propofol, they generally require more boluses than a marijuana naïve patient. When not using propofol, they tend not to achieve as deep of sedation as a drug naive patient. In order to combat marijuana users' resistance to IV sedation medications, the residents and attendings at SEPOS have changed their protocol. For marijuana users, diazepam has been used in lieu of midazolam as an induction benzodiazepine. Due to its longer mechanism of action than midazolam, diazepam seems to achieve a better plane of sedation for chronic marijuana users.

Conclusion

As marijuana usage becomes more socially acceptable and more accessible, it will increase the number of oral and maxillofacial surgery patients who report it in their social history. It is important to understand the physiological effects of marijuana usage (such as increased risk of ischemic stroke, hypothermia, and increased risk of postoperative airway obstruction). It may also increase the requirements of anesthetic medications to achieve the desired effect due to increased tolerance to those medications. As a surgical provider, it is necessary to ensure proper monitoring of patients, equipment, and medications are available to ease office-based intravenous sedation.

Conflict of Interest

There are no potential conflicts of interest to declare for this paper.

Author Contributions

All authors contributed equally for this paper.

References

1. Echeverria-Villalobos M, Todeschini AB, Stoicea N, Fiorda-Diaz J, Weaver T, Bergese SD. Perioperative care of cannabis users: a comprehensive review of pharmacological and anesthetic considerations. J Clinical Anesthesia. 2019;57:41-9.
2. Gangwani P, Lillian D, Dobbins J, Feng C, Vorrasi J, Kolokythas A. Is recreational marijuana use associated with changes in the vital signs or anesthetic requirements during intravenous sedation? J Oral and Maxillofacial Surgery. 2023;81(5):527-35.

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