



The Significance Of Illicit Drug Use To Dental Practice

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The Significance Of Illicit Drug Use To Dental Practice

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Introduction

Dentists encounter a wide array of individuals presenting for various professional dental services in their dental practices on a daily basis. Regardless of the geographic location of the dental practice or the socio-economic status of the patients, each dental office encounters individuals who are using various illegal drugs. These drugs cause a wide array of issues- physical, psychological, economic, and legal- for the user. In addition, the use of these drugs costs the world's economy billions of dollars each year in an attempt to curb their use while also costing the lives of many brave law enforcement officers in this seemingly never-ending struggle.

The dentist must be aware of this drug use in their individual patients in order to: 1) avoid possible contraindications during dental treatment; 2) be aware of the many oral and craniofacial manifestations of such drug use; 3) be able to provide necessary dental treatment to combat the dental/oral ravages of drug use and 4) be able to refer such patients, if so desired by the patient, to the proper professionals for counseling.

This paper will examine the dental/oral manifestations of four commonly used drugs- methamphetamine, heroin, cocaine, and cannabis. It will make the dental practitioner aware of the many oral conditions which can be caused by the usage of certain illegal drugs. It will also review what precautions or changes to routine dental treatment might be necessary in such individuals.

Methamphetamines

Methamphetamine is a highly powerful stimulant which is very popular with abusers due to its relatively low cost and its long "high" period. This "high" period consists of enhanced well-being, increased energy, heightened libido, and appetite suppression (1,2). Methamphetamines are known by a variety of street names which include ice, chalk, meth, speed, fire, crystal, and glass (3). Approximately 10.4 million Americans aged 12 or older have at one time in their life tried methamphetamines (4).

"Meth mouth" (3,5-7) is the term which has been used

extensively in the scientific literature to describe the devastating, yet predictable, dental effects of methamphetamine use. The buccal smooth surfaces of the teeth and the interproximal surfaces of the anterior teeth are affected by decay in methamphetamine users (3,5,8-14). Other oral findings in methamphetamine users include clenching and grinding of teeth (15), temporomandibular disorders (6), xerostomia, and poor oral hygiene (8). The duration of action of methamphetamines is 8-12 hours (16). However, it can last up to 24 hours (17,18). The vasoconstrictor in the local anesthetic could place the patient at an increased risk for myocardial infarction, hypertension, cardiac dysrhythmias, and cerebrovascular accidents (16,19-22). Therefore, a local anesthetic without vasoconstrictor should be used in such a patient if a local anesthetic is needed (13,16,21,23,24). Also, caution should be used in the administration of nitrous oxide (3) and a consultation with the patient's physician should be conducted prior to prescribing any analgesics.

Heroin

Heroin is an opiate drug which can be injected, snorted, sniffed, or smoked (25). It is the most rapidly acting and most abused of the opiates (26). Within 7 to 8 seconds an onset of euphoria is achieved when the drug is injected intravenously (27). In the United States, abuse is generally concentrated in the Northeast as this is where the drug is most readily available (28).

Concurrent treatment or use of other CNS depressant drugs such as benzodiazepines, barbituates, MAO inhibitors, antihistamines, hypnotics, general anesthetics, and tricyclic antidepressants may increase the risk of respiratory depression, hypotension, coma, and profound sedation (29). Titration of anesthetic agents may be more difficult in these patients as tolerance may develop to the effects of narcotic drugs. Also, hypotension is often seen upon induction of anesthesia (30).

An increase in dental caries has been seen in heroin abusers (31). This might be the result of their intense craving for sweets (32-36), anxiety regarding dental treatment (32), and poor oral hygiene. Also of importance to the dental professional is the increased

incidence of periodontal disease (37), oral fungal infections (37), oral viral infections (37), and hyperpigmentation of the tongue (38). As the primary oral effect of heroin use is dental decay (39), the dentist must be aware of this and incorporate measures such as more frequent recall appointments and constant reinforcements of oral hygiene with the patient.

Cocaine

Cocaine (benzoylecgonine) is an alkaloid which is extracted from the leaf of the *Erythroxylon coca* bush (40). Peru and Bolivia are the primary locations where coca bushes are grown. They are refined primarily in Columbia (41). Cocaine is known by many street names including nose candy, snow, coke, c, blow, and toot (42). Drug dealers mix it with other substances in order to increase the quantity of their product. This has the dangerous side effect of the user not knowing how much cocaine is actually being ingested thus more side effects to this already dangerous drug (42).

Cocaine is classified as a psychostimulant which exhibits both local anesthetic and neurotransmitter effects (43-46). Centrally, cocaine affects adrenergic nerve endings where it blocks the re-uptake of catecholamines and potentiates (47) particularly dopamine. This results in cocaine's transient euphoric effects (47,48). Locally, cocaine blocks the initiation and propagation of nerve impulses along an axon by interference with sodium permeability during depolarization (41,49,50).

There are many dental effects (40,43,51-55) of cocaine use. They are: gingival lesions, temporomandibular disorders, bruxism, cervical abrasion, occlusal wear, corrosion of gold dental restorations, excessive hemorrhage after tooth extraction, increased rate of tooth decay, and increased rate of periodontal disease. Other intra-oral and craniofacial manifestations (40,43,51-57) include oral candidal infections, nasal necrosis, headaches, perforation of palate, oral ulcers, bilateral cleft lip and palate in fetus, xerostomia, angular cheilitis, halitosis, glossodynia, and erosive lichen planus. The administration of a local anesthetic with vasoconstrictor may result in an acute rise in blood pressure (40,58). There is also a risk of convulsions associated with the combination of lidocaine and cocaine potentiates (40,59-62). Use of epinephrine-impregnated retraction cords is also contraindicated (51). It is advisable to postpone any dental treatment at least 6 to 24 hours after the use of

cocaine (40,58,61,63).

Cannabis

Cannabis is a drug of plant origin (64) which contains a very unique group of chemicals known as cannabinoids. Delta-9-tetrahydrocannabinol (THC) is the primary active chemical which may induce relaxation and heighten the senses (65). There are three main forms of cannabis- marijuana, hash, and hashoil. Cannabis-in the form of hash and marijuana- is thought to be the most frequently used drug in the United States (66,67).

There has been a documented link shown between cannabis smoking and many intraoral disturbances. Among these effects are fiery-red gingivitis, gingival leukoplakia, alveolar bone loss, gingival inflammation, gingival hyperplasia (68-70), oral papillomas (64,71), hyperplastic gingiva (64,72), uvulitis (64,73,74), tongue carcinoma (64,75), xerostomia (66), and an increased risk of dental caries (64,76).

The dentist must use certain precautions with a patient who is known to use marijuana. It is suggested that dentists tell their heavy-using marijuana patients to cease its use for at least one week prior to dental treatment (66). Tachycardia and peripheral vasodilation are associated with acute marijuana toxicity. If epinephrine is used, these effects could be enhanced to possibly life-threatening levels especially if anxiety levels are also significantly elevated (66). Also, dentists should avoid prescribing alcohol-containing mouthrinses as xerostomia is one of the oral manifestations of cannabis usage (66).

Conclusion

It is imperative that dentists be cognizant of the many oral/dental manifestations of illegal drug use in order to both properly diagnose various conditions with which patients routinely present to dental practices and to treat (or sometimes to delay treatment) in an efficient manner without doing harm to the patient. The treating dentist must remember that drug addictions affect all gender, socio-economic, and age groups. The dentist must discuss with the patient his or her history of drug abuse, in a non-condemnatory fashion, during the review of the patient's medical history prior to treatment. Hopefully, some of these patients will also be willing to be referred to a professional drug treatment facility in order to attempt to put an end to the ceaseless ravages which illicit drug abuse cause many members of our society.

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