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Oral Lesions in Crack and Cocaine User Patients: Literature Review

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ABSTRACT

Since the 1960s, drug consumption has become a global concern, due to its high frequency and the risks it can cause to human health. Studies have shown an increase in the number of drug users with oral lesions resulting from drug consumption and also a lack of knowledge on the part of dental surgeons with regard to the subject. It is important for professionals in this area to have the knowledge needed to diagnose the emergence of possible alterations that can occur as a result of alcohol, tobacco, and illicit drug consumption. In light of this, the aim of this paper was to identify and describe the main oral lesions associated with the use of crack and cocaine, via a review. For the data collection, searches were carried in out the BIREME, EBSCO, PubMed, and Medline databases, by cross-checking the following descriptors: Cocaine/Crack AND Oral Manifestations AND Oral health, in English and Portuguese. 42 articles were found in the BIREME database, 24 in PubMed, and seven in EBSCO, totaling 73 articles. After carefully reading the abstracts found in all the databases, 12 articles were used to conduct this study. It can be concluded that crack and cocaine use contributes to an increase in the prevalence of lesions of the oral mucosa. The main diseases found in the users of these drugs were periodontal problems, cavities, lesions in the oral mucosa, and the ability that these substances have to cause alterations in the genetic material of the DNA. There was an observed need for dental surgeons to have the knowledge to treat these diseases, since they may be the first people to carry out the patient diagnosis.

Keywords

Cocaine, Crack, Oral health, Oral manifestations.

Introduction

Since the 1960s, drug consumption has become a global concern, due to its high frequency and the risks that it can cause to human health [1]. Psychoactive substances are natural or synthetic substances that, when absorbed by the body through ingestion, inhalation, skin absorption, or injection, reach the blood flow and, consequently, the brain, compromising its balance and causing reactions that can vary from joy and sadness to aggressiveness [2].

Drug consumption is one of the main social and public health problems throughout the world. The effects of alcohol and other drug abuse are determinants for morbimortality. Studies show a considerable increase in the number of drug users with oral diseases caused by drug consumption, and also a lack of knowledge on the part of dental surgeons with regard to the subject. It is important for professionals in this area to have the knowledge needed to diagnose the emergence of possible alterations that can occur as a result of alcohol, tobacco, and illicit drug consumption [3].

Oral diseases result in a number of multi-factoral organic alterations and are influenced by social class, educational level, economic factors, age, general state of health, habits, and attitudes. Certain groups, such as people with a low income, the elderly, individuals with physical disorders, drug users, and people with mental disabilities, fall into a higher risk category for developing pathological oral alterations [4].

Most drug users present low immunity and various cellular alterations that can influence the development of cancer and other pathologies. These patients show a certain resistance to treatment adhesion and use substances such as alcohol and tobacco, which can lead to the appearance of mouth cancer, among other pathologies [5].

Some habits adopted by drug users, such as poor dietary habits, loss

of self-esteem, changes in behavior, and lack of care with general and oral hygiene, are risk factors for the development of many oral diseases. Abusive drug use, for example, can have consequences for oral health, such as xerostomia, a high DMFT (decay, missing, and filled teeth) index, a reduction in buffering capacity, halitosis, bruxism, periodontal diseases, stomatitis, and angular cheilitis [6].

The use of illicit drugs has increased a lot in recent years. Among these drugs, marijuana, cocaine, and crack are the most widely used forms. In the oral cavity, these substances produce various cellular and tissue alterations. In addition, drug users present a significant decline in immunity, as well as various other cellular alterations that can contribute to the development of cancer and other oral lesions. It is hoped that this study helps professionals in the area of oral health with regard to identifying the main lesions that can be found in the oral cavity of these patients.

Thus, this paper aimed to identify the main oral alterations associated with the use of crack and cocaine.

Material and Methods

This study is characterized as a literature review. For the data collection, searches were carried out in the EBSCO, Bireme, and Pubmed databases. For the EBSCO and Bireme database searches, the following descriptors indexed in Portuguese in the DeCS (Descritores em Ciências da Saúde - Health Science Descriptors) were used: Cocaína Crack (/efeitos adversos; /metabolismo), Manifestações bucais, and Saúde bucal. For the search in the Pubmed database, the following descriptors indexed in English in the MeSH (Medical Subject Headings) were used: Crack Cocaine (/adverse effects; /metabolism), Oral manifestations, and Oral health. The cross-checks carried out were: Cocaine/Crack AND Oral manifestations AND Oral health for the BIREME database. For the PubMed, EBSCO, and Medline databases the descriptors used were: Crack Cocaine AND Oral manifestations AND Oral health.

Articles published between 2000 and 2016 and texts published in Portuguese, English, and Spanish, and available in full, were included in the research. Articles without a specific approach to the proposed theme and repeated articles were excluded.

The articles identified in the data collection were initially analyzed by their title, followed by the abstract.

Results

42 articles were located in the BIREME database, 24 in PubMed, and seven in EBSCO, totaling 73 articles. After the selection, of the 42 articles found in BIREME, 17 articles did not present specificity to the proposed theme, nine repeated, and 10 were not available in their entirety.

Seven articles were found in the EBSCO database, however three were not specific to the theme and two repeated, and so two were selected. In the PubMed database, 24 articles were found. Of these, 18 did not contemplate the theme and two were repeated, and so four articles were selected. After carefully reading the abstracts found in all the databases, 12 articles were used to conduct this research (Chart 1).

Chart 1 – Description of the articles included.

Title	Type of study	Objective	Result	Conclusion
Oral health assessment for users of marijuana and cocaine/crack substances. Sordi et al. [7]	Cross-sectional population-based	To evaluate the oral health of users of illicit drugs, such as marijuana and cocaine/crack, and compare it with individuals who do not use these chemical substances.	Alterations in the mucosa were detected, but not potentially malign ones or with oral cancer were diagnosed.	Illicit drug use contributed to an increase in the prevalence of lesions of the oral mucosa.
Dental health status in crack/cocaine-addicted men: a cross-sectional study. Cury et al. [8]	Cross-sectional population-based	To relate crack dependence with oral health in men.	In the current population, crack/cocaine dependence was associated with higher rates of decayed and missing teeth.	Programs geared toward promoting self-esteem and incentivizing individuals to seek dental care are needed for this population. But studies using a bigger sample size and studies with women are needed to confirm the results.
Nuclear changes in oral mucosa of alcoholics and crack cocaine users. Webber et al. [9]	Cross-sectional population-based	To evaluate the frequency of nuclear alterations in the apparently normal oral mucosa of alcoholics and crack users.	A significant increase in manganese frequency was identified based on exfoliated cells observed on the tongue of crack users ($p = 0.01$).	The findings suggest that cocaine use causes clastogenic effects (the ability these substances have to cause alterations in the genetic material of the DNA). Alcoholism is associated with higher degrees of keratinization on the floor of the mouth.
Effect of crack on oral conditions: literature review Antoniazzi et al. [10]	Literature Review	To verify the effect of crack consumption on oral conditions.	Effects are directly or indirectly associated with the etiopathogeny of cavities and periodontal diseases and of lesions in the oral mucosa.	Few studies of the case series and association type have been published and have demonstrated a greater occurrence of dental cavities and erosion, gingivitis, periodontitis, and alterations in the oral mucosa, such as ulcers, oral thrush, and alterations in the epithelial cells in crack users.

Behavioral, psychological, and oral hygiene alterations and the presence of superinfectant organisms and viruses of the Herpesviridae family in patients kept on a detoxification program for drug users. Lins [11]	Cross-sectional population-based	To evaluate the occurrence of illnesses in female patients with chemical dependence and the possibility of the oral cavity of these patients becoming a reservoir for opportunistic microorganisms.	A higher frequency of behavioral and/or psychological alterations was verified in the test group, as well as joints pains, opportunistic infections, cephalalgia, fatigue, xerostomia, tingling in the limbs, anemia, periodontitis, weight loss, and delay in the repair process, among others.	The occurrence of inflammatory and infectious reactions, with a statistically significant prevalence of periodontal diseases being observed in these patients.
The impact of oral health conditions, socioeconomic status and use of specific substances on quality of life of addicted persons. Marques et al. [12]	Cross-sectional population-based.	To evaluate the impact of oral health conditions, socioeconomic situation, and use of specific substances on the quality of life of alcoholics and drug users who received care at clinical treatment installations in Brazil.	Cocaine users/oral sinus fistula were more likely to have poor oral and systemic quality.	The general quality of life of chemically dependent people was associated with the experience of cavities, low income, and cocaine/crack.
Palatal perforations: past and present. Two case reports and a literature review. Bains and Hosseini-Ardehali [13]	Case Report	To present two cases of palatal perforations caused by tertiary syphilis and cocaine abuse.	Syphilis and cocaine abuse represent a growing public health problem on a global and national scale. Doctors are more and more likely to encounter associated oral manifestations.	Syphilis and cocaine are growing problems and dentists will encounter them in their clinics.
The significance of cocaine use to dental practice. Maloney [14]	Literature Review	To review the literature on the oral manifestations of cocaine users.	The most common alterations found were: halitosis, xerostomia, Candida albicans, and palatal perforation.	Cocaine users present many challenges for dental professionals. They need to be aware of many systemic and oral effects during dental treatment.
Sociodemographic factors and oral health conditions in drug users Costa et al. [15]	Cross-sectional population-based	To identify, clinically and by means of an anamnestic questionnaire, the oral health conditions in individuals caused by drug use and its relationship with sociodemographic factors.	Most of the drug users presented oral health problems; they had been drug users for more than five years; oral health problems can be associated with poor body hygiene due to abusive use of drugs. It was also observed that the longer the period of dependence, the more precarious the user's oral health (p= 0,002), and that the precariousness of their oral health is related to their oral health habits (p=0.029).	There was an observed need for dental health professionals to take part in the recovery projects offered to these patients, to carry out oral health promotion and recovery and quality of life improvement programs.
Multiple Gastrointestinal Complications of Crack Cocaine Abuse Carlin, Nguyen, and DePasquale [16]	Case Report	To report the systemic and oral manifestations of a cocaine user patient.	Intestinal ischemia and perforation continue to be the most common manifestations of gastrointestinal disease associated with cocaine and have been historically associated with oral ingestion of cocaine.	Drug abuse through inhalation and oral, intravenous, and intranasal ingestion was highly associated with various medical complications.
Oral manifestation upon short time cocaine abuse. A case report. Biasotto et al. [17]	Case Report	To report a case in an 18-year-old male patient with a history of 15 days of painful and persistent ulcers and oral lesions of unknown etiology and without other notable manifestations.	Ulcers on the oral palate and floor were identified.	Finally, after 15 days of interruption of cocaine abuse, the oral lesions presented complete regression.
The head, neck, and systemic manifestations of levamisole-adulterated cocaine use. Magliocca, Coker, and Parker [18]	Literature Review	To increase the awareness of these manifestations among oral and maxillofacial surgeons.	Unlike other vasculopathies involving the skin, vascular lesions caused by cocaine often manifest as purple and necrotic lesions that involve the face and oral mucosa.	When the manifestations of cocaine affect the head, the neck, and the oral cavity, oral and maxillofacial surgeons may be the first to encounter the patient. Early recognition of the clinical signs and of the laboratorial anomalies will enable the effects related to cocaine use to be better distinguished, as well as adequate management of the patient, and could also contribute to an understanding of the biological effects of this drug.

Discussion

For Machado et al. [19], the number of illicit drug users in Brazil is growing and increasing by around 10% a year. Users seek to consume this type of substance in order to obtain relaxing and pleasurable effects. Many drugs, such as crack and cocaine, result in various alterations, including physical, chemical, and emotional ones. Like the author above, Colodel et al. [20] claim that exposure to these substances affects the quality of oral health, causing alterations in salivary flow, bone loss, cavities, periodontitis, xerostomia, bruxism, and pain, each of which has a devastating effect on oral tissues.

Corroborating with the author above, Sordi et al. [7] carried out a study to evaluate the oral health of users of illicit drugs, such as marijuana and cocaine/crack, and compare it with individuals who do not use these chemical substances. They found alterations in the mucosa, but not potentially malignant ones or with oral cancer. Illicit drug use contributed to an increase in the prevalence of lesions of the oral mucosa.

Cury et al. [8] related crack dependence and oral health in men. In the current population, crack/cocaine dependence was associated with a higher rate of decayed teeth and a higher rate of missing teeth. These findings are consistent with the study by Amaral, Miranda, and Pires [21].

Like the authors above, Marques et al. [3] evaluated the impact of oral health conditions, socioeconomic situation, and the use of specific substances on the quality of life of alcoholics and drug addicts who receive care at clinical treatment installations in Brazil. They concluded that the general quality of life of chemically dependent people was associated with the experience of cavities and poor oral hygiene.

Webber et al. [9] evaluated the frequency of nuclear alterations in the apparently normal oral mucosa of alcoholics and crack users. They concluded that cocaine use causes clastogenic effects (the capacity of these substances to cause alterations in the genetic material of the DNA), and that alcoholism is associated with higher degrees of keratinization on the floor of the mouth. Other authors who studied the effect of crack and cocaine on cellular alteration and concluded that they have the ability to alter DNA were Dedivitis et al. [22], Fernandes, Brandão, and Lima [23], and Sordi [5].

For Antoniazzi et al. [10], who verified the effects of crack consumption on oral conditions, these effects are directly or indirectly associated with the etiopathology of the cavity and periodontal diseases and lesions in the oral mucosa. Albini [6] conducted a study involving drug users and periodontal disease and reached the same conclusion as the authors above.

Lins [11] evaluated the occurrence of illnesses in chemically-dependent female patients and the possibility of oral cavities in the patients becoming a reservoir for opportunistic microorganisms. A higher frequency of behavioral and/or psychological alterations was verified in the test group, as well as joint pains, opportunistic infections, cephalalgia, fatigue, xerostomia, tingling in the limbs, anemia, periodontitis, weight loss, and delay in the repair process, among others. This was consistent with Albini [6].

To identify, clinically and by means of an anamnestic questionnaire, the oral health conditions in individuals caused by drug use and its relationship with sociodemographic factors, Costa et al. [15] carried out a study and concluded that most dependents presented poor oral health; they had been chemical dependents for more than five years; deficient oral health may be associated with poor body hygiene due to abusive drug use.

It was also observed that the longer the period of dependence, the more precarious the health of these users.

Maloney [14] carried out a literature review on the oral manifestations of cocaine dependents, and the most common results found were: halitosis, xerostomia, Candida albicans, and palatal perforation. This was consistent with Colodel et al. [20].

Biasotto et al. [17] reported a case of a cocaine using patient with a history of 15 days of painful ulcers and oral lesions of an unknown etiology and without other notable manifestations. Ulcers on the palate and on the floor of the mouth were identified. These findings were consistent with the study by Magliocca, Coker, and Parker [18], who report that vascular lesions caused by cocaine often manifest with purple and necrotic lesions that involve the face and oral mucosa.

Other important information for dental surgeons is to discuss the nature of cocaine, its pharmacology, its systemic effects, the oral manifestations of cocaine abuse, and the clinical management recommended for the patient. Dental surgeons may frequently and unknowingly treat patients who use cocaine and, therefore, should be educated about problems related to cocaine and be prepared to deal with the complications [18].

It is important to highlight that the information on this subject could not be finalized with this literature review alone, and thus more scientific work needs to be carried out to analyze the relationship between crack and cocaine use and oral health. In addition, the manifestations of these drugs at the systemic level and quality of oral health are important for Dentistry.

Final Remarks

It can be concluded that crack and cocaine use contributes to an increase in the prevalence of lesions of the oral mucosa. The main diseases found in the users of these drugs were periodontal problems, cavities, lesions in the oral mucosa, and alteration of the DNA of the oral cells.

There was an observed need for dental professionals to have the knowledge to treat these diseases related with crack and cocaine use, since dental surgeons may be the first to encounter the patient. Early recognition of the clinical signs and of the laboratorial

anomalies will enable the effects related to the use of these drugs to be better distinguished.

Cocaine and crack use can cause various types of damage to oral health, ranging from halitosis and gingivitis to oral cancer. These drugs often increase the user's pain threshold, hiding the painful symptomatology of oral lesions and worsening the situation, since the patient takes longer to seek a health center.

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