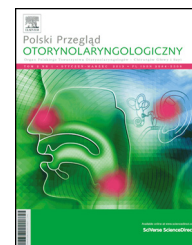


Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.elsevier.com/locate/ppotor](http://www.elsevier.com/locate/ppotor)

Original research article/Artykuł oryginalny

## Disorders of taste function in crack cocaine addicts



Cassiano Lima Chaiben<sup>1</sup>, Ângela Fernandes<sup>1</sup>, Marilia Compagnoni Martins<sup>1</sup>,  
 Maria Ângela Naval Machado<sup>1</sup>, João Armando Brancher<sup>2</sup>,  
 Antônio Adilson Soares de Lima<sup>1,\*</sup>

<sup>1</sup>Programa de Pós-graduação em Odontologia, Department of Stomatology, School of Dentistry, Universidade Federal do Paraná – UFPR, Curitiba/PR, Brazil

<sup>2</sup>School of Health and Biosciences, Pontifícia Universidade Católica do Paraná – PUCPR, Curitiba/PR, Brazil

### ARTICLE INFO

#### Article history:

Received: 01.11.2013

Accepted: 26.11.2013

Available online: 05.12.2013

#### Keywords:

- Crack cocaine
- Taste
- Dysgeusia
- Ageusia
- Mouth abnormalities

### ABSTRACT

Cocaine can be smoked in the form of rocks (crack cocaine or crack) by means of pipes. The use of crack cocaine is a health problem in several countries.

The aim of this study was to evaluate taste perception in chronic crack cocaine users compared with a drug-free control group.

Sixty males (21–45 years-old) were divided into two groups (30 crack cocaine users and 30 nonusers) and taste function was assessed using the taste strips technique with the four basic tastes.

The mean age of the experimental and control group was of 31 years (21–45). In the case group, the average consumption of crack cocaine was 4 g/day. These individuals were using this illicit drug for more than seven years. Seven (23.3%) patients concomitantly used crack cocaine and cocaine (3.8 g per day). Crack cocaine users had difficulty recognizing salty flavor, subsequently sweet and bitter. In general, crack cocaine users confused the salty taste as sour or bitter. All patients in case group (100%) and 23 (76.6%) control subjects were unable to identify the sweet solution less concentrated. Twenty (66.6%) crack cocaine users and 7 (23.3%) had hypogeusia.

According to these results, it can be concluded that the chronic use of crack was able to change the taste perception leading to a high prevalence of hypogeusia in these individuals.

© 2013 Polish Otorhinolaryngology - Head and Neck Surgery Society. Published by Elsevier Urban & Partner Sp. z o.o. All rights reserved.

### Introduction

Cocaine is a strong central nervous system stimulant that interferes with the reuptake process of dopamine, a chemical messenger associated with pleasure and movement [1].

Cocaine can be smoked in the form of rocks (crack cocaine or crack) by means of pipes. The use of crack cocaine is a health problem in several countries [2]. Crack cocaine is the freebase form of cocaine that can be smoked. Crack cocaine produces changes in neurophysiologic activation, metabolism and blood flow of the limbic system. The acute effects

\* Corresponding author at: Universidade Federal do Paraná – UFPR, Departamento de Estomatologia – Curso de Odontologia, Rua Prof. Lothário Meissner 632 Campus III Jardim Botânico, 80210-170 Curitiba, Paraná, Brazil. Tel.: +55 41 33604050; fax: +55 41 3360 4134.

E-mail addresses: [antollima@hotmail.com](mailto:antollima@hotmail.com), [aas.lima@ufpr.br](mailto:aas.lima@ufpr.br) (A.A.S. de Lima).

2084-5308/\$ – see front matter © 2013 Polish Otorhinolaryngology - Head and Neck Surgery Society. Published by Elsevier Urban & Partner Sp. z o.o. All rights reserved. <http://dx.doi.org/10.1016/j.ppotor.2013.11.006>

of cocaine occur in the prefrontal cortex [3]. It has a remarkable effect of psychomotor stimulant that causes euphoria, verbiage, motor activity and amplification of a sense of well-being similar to the effects of amphetamine [4].

Lesions in the mouth, oropharynx, and laryngopharynx associated with different forms of cocaine include enamel erosion caused by intraorally applied cocaine hydrochloride, necrotic lesions of the tongue and epiglottis related to smoking free-base cocaine, and laryngeal mucosal burns caused by smoking crack cocaine [5–7]. In addition, crack cocaine addicts may experience: nasal voice, sore throat, obstruction and/or bleeding, rhinorrhea, cough, and loss of taste [8].

The chemosenses of smell and taste contribute to quality of life and environmental appreciation. The taste stimulus caused by nutritional or poisonous substances have an important influence on physiology and behavior [9]. The perception of taste begins at the taste buds: clusters of receptors cells located mostly on the tongue but also on the palate and laryngeal surface of the epiglottis [10]. Numerous processes can contribute to the loss or alteration of taste. Viral, bacterial, fungal, and parasitic infections of the oral and hypopharyngeal mucosa, head and neck radiotherapy, trauma, diabetes, poor oral hygiene, and drugs may lead to disturbance of taste [11, 12]. In this context, taste alterations are frequently reported by crack cocaine addicts [8]. However, in literature, clinical researches on the effects of crack cocaine use are scarce. Thus, this study investigated whether the chronic use of crack cocaine is able to alter the perception of taste.

---

## Materials and methods

The experimental protocol of this study was approved by the Research Ethics Committee of the Center of Health Sciences, Universidade Federal do Paraná (UFPR), Curitiba/PR, Brazil (Protocol number 1007.132.10.09).

### Subjects

Thirty crack cocaine addicts (case group) and 30 healthy volunteers (control group) participated this study. Name, age, sex, occupation, and relevant medical history were recorded. Regular mouth rinse users, as well as, individuals that had oral mucosa injuries, upper respiratory tract, otitis media, anemia, and hepatitis were excluded in this study.

### Case group

This group, composed of 30 crack cocaine users, was admitted to the Instituto de Pesquisa e Tratamento do Alcoolismo – IPTA (Campo Largo/PR, Brazil) for detoxification.

### Control group

Thirty patients of the School of Dentistry (UFPR), who were free of oral complaints, were matched with the experimental group by sex, race, and educational level.

### Taste evaluation

The gustatory function of individuals in the case group was examined immediately when they entered the hospital. The methodology proposed by Mueller et al. [13] was used to investigate the gustatory function in both groups. This technique consists in the use of a strip of filter paper (4 mm) soaked with sterile solutions of the four basic tastes in three different concentrations (sucrose solution at 1%, 10%, 30%; sodium chloride solution at 0.9%, 0.18%, 0.36%; citric acid solution at 0.02%, 0.04%, 0.1%; and quinine sulfate solution at 0.001%, 0.002%, 0.005%). During 90 s the strips were placed on the dorsal surface of the tongue and with the mouth closed. Then, each strip was moved orally by the patient to try to identify the flavor. Prior to each consecutive test, the surface of the tongue was strictly washed with water through a triple syringe. Twelve strips were used for each individual. Moreover, the test solutions were placed on the tongue in a random order. In order to quantify the examination, all correct answers were regarded as a point, allowing a maximum score of 12 points, since neutral taste was excluded from the punctuation. In addition, the participants of this study were assessed for the presence or absence of hypogeusia. The 10th percentile was the parameter used to separate normogeusic from hypogeusic individuals [13].

### Statistical analysis

All the data were tabulated and statistical tests were performed with SPSS for Windows 13.0 (SPSS Inc., Chicago, IL, USA). These results were analyzed for normal distribution using Shapiro–Wilk's test. The Mann–Whitney test was used to assess whether there was statistical differences in taste perception between groups. Differences were considered statistically significant when  $p < 0.05$ .

---

## Results

The mean age of the experimental and control group was of 31 years (21–45). In the case group, the average consumption of crack cocaine was 4 g/day. These individuals were using this illicit drug for more than seven years. Seven (23.3%) patients concomitantly used crack cocaine and cocaine (3.8 g per day). Furthermore, marijuana use was reported by only three (10%) subjects with an average consumption of three marijuana cigarettes/day. Concerning alcohol consumption, fifteen crack cocaine users reported this habit (0.2–3 L/day). Table I illustrates the profile of crack cocaine users and controls in relation to drug use, illicit drug use, smoking, alcoholism and the presence or absence of oral alterations.

The distribution of responses to the flavors in each test in relation to groups is presented in Table II. Crack cocaine users had difficulty in recognizing the salty, sweet and bitter. Regarding sour taste, the groups had similar responses. In general, crack cocaine users confused the salty taste as sour or bitter. All patients in case group and 23 (76.6%) control subjects were unable to identify the sweet solution less concentrated. The other two sweet solutions were easily

Download English Version:

<https://daneshyari.com/en/article/3171939>

Download Persian Version:

<https://daneshyari.com/article/3171939>

[Daneshyari.com](https://daneshyari.com)