



Temporomandibular Joint Status, Occlusal Attrition, Cervical Erosion And Facial Pain Among Substance Abusers

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Summary

Statement of the problem: Drug addiction or substance abuse is an endemic habit globally. At present there is no data available regarding the temporomandibular joint status, Occlusal and cervical tooth wear and facial pain among substance abusers from the Saudi Arabia.

Purpose: The aim of the study was to investigate the temporomandibular joint status, occlusal and cervical tooth wear and facial pain among the drug abusers from narcotics control prison, Riyadh, Saudi Arabia.

Materials and Methods: One hundred subjects were included in the study as a convenience sample. Male comprised of 56 and female 44. An interview and clinical examination were performed.

Results: The age ranged from 20–65 years with mean (31.4 ± 8.9). Smoking, drinking and chewing habits were most common modes of drug used. 98.0% were smokers, 61.0% alcohol drinkers and 41.0% were cannabis user. The duration of drug abuse was more than 5 years among most of the candidates. TMJ status revealed that clicking was reported by 40.0%, tenderness by 9% and reduced jaw mobility 0.0%. Occlusal enamel wear (attrition) was reported by 16.1% of male and 18.1% of female. However, the occlusal dentine exposure was among female only (18.1%). Cervical erosion abrasion was common among 16.1% male and 54.5% female. Facial pain was experienced by 6.0% and facial numbness by only 1.0% of the subjects.

Conclusion: Smoking, alcohol and cannabis were common among the studied population. Only 9.0% of the subjects had tenderness in TMJ, occlusal enamel wear was among 17.0% of subjects. Only female subjects had dentinal exposure. Facial pain was common among up to only 6.0% of the studied population.

From public health point of view, smoking cessation programs and oral health education should be introduced to adolescents to prevent unhealthy illicit substance abusing habits in future. Further studies are needed to assess the oral mucosal changes, dietary pattern, oral hygiene behavior, quality of life and level of satisfaction among the substance abusers from Saudi Arabia.

Résumé

Atteintes de l'articulation temporomandibulaire, attrition occlusale, érosion cervicale, et douleur faciale chez les sujets sous dépendance en Arabie Saoudite

Le problème : L'accoutumance à une drogue ou l'abus de substances addictives est une plaie endémique globale. Jusqu'à présent il n'y a pas de données solides concernant l'état de l'articulation temporomandibulaire, la présence ou non de facettes d'usure cervicale et occlusale, et/ou douleur faciale parmi des sujets sous dépendance en Arabie Saoudite.

Objectif : Le but de cette étude était d'évaluer l'état de l'articulation temporomandibulaire, la présence de facettes d'usure cervicale et occlusale, et l'incidence de la douleur faciale parmi les sujets sous dépendance à Riyad, en Arabie Saoudite.

Matériels et méthodes : Cent sujets ont été inclus dans cette étude soit 56 hommes et 44

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Keywords:

TMJ,
Attrition,
Erosion,
Facial pain,
Substance abuse
Oral health

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femmes. Un interrogatoire et un examen clinique ont été effectués.

Résultats : L'âge varie entre 20-65 ans avec une moyenne de 31.44 ± 8.9 . L'inhalation, l'ingestion, et la mastication étaient les modes les plus communs pour les drogues étudiées. 98% étaient fumeurs, 61.0% consommateurs d'alcool, et 41.0% de cannabis. La durée de la consommation de la drogue dépassait les 5 ans pour la plupart des candidats. L'état de l'articulation temporomandibulaire a montré que les bruits articulaires ont été les plus fréquents avec 40.0% suivis de la douleur avec 9%. La réduction de mobilité n'a pas été observée. La présence de facettes d'usure de l'émail au niveau occlusal (attrition) a été rapportée chez 16.1% des hommes et 18.1% des femmes. L'exposition de dentine occlusale a été rapportée uniquement chez les femmes (18.1%). 75.0% des hommes et 63.6% des femmes n'ont pas présenté de facettes d'usure. L'érosion cervicale était présente chez 16.1% des hommes et 54.5% des femmes. La douleur faciale a été observée dans 6.0% des cas et l'engourdissement facial dans seulement 1.0% des sujets.

Conclusion : Fumeurs, consommateurs d'alcool, et de cannabis étaient fréquents dans la population étudiée. Seuls 9.0% des sujets présentaient une douleur de l'articulation temporomandibulaire, alors que les facettes d'usures de l'émail occlusal étaient présentes chez 17.0% des sujets. Seules les femmes ont démontré une exposition dentinaire. La douleur faciale a été retrouvée uniquement dans 6.0% de la population étudiée. De nouvelles études sont nécessaires pour évaluer les modifications de la muqueuse orale et le niveau de satisfaction chez les sujets sous dépendance en Arabie Saoudite.

Mots-clés :
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Introduction

The evolution of the main illicit drug market in recent years provides an uneven picture of positive and negative developments, depending on the drugs and regions considered. Overall, the evolution of world heroin and cocaine markets shows the same positive tendencies. The picture confused for synthetic drugs and fairly negative for cannabis. Treatment data consistently shows that illicit heroin use has the most severe health consequences for drug abusers. In 2000–2001, United Nations office on drugs and crime (UNODC) estimated that about 15 million people abused opium and heroin in the world. Cocaine is abused by about 14 million people in the world and comes second to Heroin in terms of treatment demand. Cannabis continues to be the most widely produced trafficked and consumed illicit drug worldwide (1). Amphetamine type stimulants (ATS) are synthetic drugs that include the chemically related amphetamine, methamphetamine and ecstasy. In 2000, close to 90% of all countries reporting to UNODC on trends in the abuse of methamphetamine

reported an increase (1).

Alcohol consumption, cannabis, amphetamines, tobacco, heroin, cocaine, LSD and ecstasy, they all have their side effect on orodental tissues (2). It is well established that certain substances suppress or exacerbate bruxing activity in animals and in humans (3-5), and substances may be related to the dopaminergic, serotonergic, or adrenergic system. In several animal studies, the facilitatory effect of dopaminergic drugs on rhythmic jaw movement has been described (6, 7). Long term exposure to anti-dopaminergic drugs is associated with daytime bruxism which ceases during sleep in humans (8). Acute bruxism and akathisia occurring as early side effects of anti-psychotic drug treatment has been reported in 2 patients (9). HARTMAN observed a 60% increase in bruxing activity following subjects use of alcoholic drinks (10).

Chronic cocaine intake increases brain reward thresholds and elicits dysregulation of the brain reward system, resulting in compulsive drug use (11-12).

Temporomandibular joint dysfunction (TMD) has generally been presumed to be a condition affecting adults (13). Trauma, emotional status, malocclusion and oral parafunctions are known etiological factors for TMD (13). Temporomandibular joint (TMJ) status, impaired movements of the mandible, limitations in the mouth opening, preauricular pain, facial pain, headaches and jaw tenderness on function are the signs and symptoms that have been most commonly reported (13-16).

Prevalence of signs and symptoms of TMD are predominant in the literature for various ethnic groups worldwide. However, only few studies have attempted to survey the TMD, TMJ disorders from Saudi Populations (17-21). So far, there is no data available from Saudi Arabia regarding temporomandibular joint status, occlusal attrition, cervical erosion and facial pain among substance abusers.

The aim of this study was to collect information about TMJ status, occlusal attrition, cervical erosion and facial pain among substance abusers from narcotics control prison in Riyadh, inhibiting special group of inmates with drug abuse allegations.

Materials and Methods

The study was carried out at Riyadh Narcotics control prison and Riyadh female prison. The permission to conduct the study was granted by the Ministry of Interior, General Administration of Medical Services and General Administration of Narcotics Control, Saudi Arabia. The study was conducted during the period between March and April 2000. A survey form was developed, which included demo-graphic questions, details of addiction habits, TMJ status, occlusal attrition, cervical tooth wear and facial pain. The survey form was pretested and two of the authors were calibrated. All the subjects were in prison because of illicit substances abused. An interview and clinical examination were performed for each subject.

The data were analyzed by SPSS (version 10). Descriptive statistic was used to summarize the data. Independent two-sample 't' test was utilized to compare the mean values. While a Chi-square or Fisher Exact test was performed to determine the relationship of any two attributes. The significance level was set at 5%.

Results

One hundred inmates were included in the study, 56 male and 44 female subjects. The age ranged from 20–65 years with mean 31.4 ± 8.99 . Most of the subjects (8.0%) were smokers. Regarding addiction habits, majority of the subjects were (61.0%) alcohol addict while cannabis, captagon, heroin and khat were 41.0%, 23.0%, 14.0% and 8.0% respectively (table 1).

Fourteen percent of the subjects used Heroin by intravenous, oral and sniffing method. Cannabis was used 41%, including smoking, drinking and chewing habit. Among 23%

Table 1: Type of drugs used and number of users

Substance	Male	Female	Total (%)
Tobacco	57	41	98 (98.0)
Khat	2	6	8 (8.0)
Shamma	0	2	2 (2.0)
Heroin	5	9	14 (14.0)
Cocaine	0	2	2 (2.0)
Alcohol	30	31	61 (61.0)
Cannabis	19	22	41 (41.0)
Shisha	0	6	6 (6.0)
Captagon	16	7	23 (23.0)
Total	129	126	255

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Table 2: Mode of drugs used

Substance	Intravenous	Oral	Sniffing	Smoking	Drinking	Chewing	Total
Tobacco				96		2	98
Khat						8	8
Shamma						2	2
Heroin	4	1	9				14
Cocaine	1		1				2
Alcohol					61		61
Cannabis				36	2	3	41
Shisha				6			6
Captagon		2				21	23
Total	5	3	10	138	63	36	255

Table 3: Duration of drugs used

Substance	1 - 6 months	6 - 12 months	1-2 years	2-5 years	> 5 years	Total
Tobacco	1	1	5	13	78	98
Khat		1	2	2	3	8
Shamma					2	2
Heroin	1		1	6	6	14
Cocaine			1		1	2
Alcohol		1	3	7	50	61
Cannabis	2	1	6	9	23	41
Shisha	1		1	1	3	6
Captagon		1	7	6	9	23
Total	5	5	26	44	175	255

Table 4: TMJ status and facial pain among subjects

Condition	Male (%)*	Female (%)*	Total (%)	P Value
Clicking	28 (50.0)	12 (27.3)	40 (40.0)	.014
Tenderness	3 (5.4)	6 (13.6)	9 (9.0)	.151
Reduced Jaw Mobility	0	0	0	
Facial Pain	5 (8.9)	1 (2.3)	6 (6.0)	.173
Facial Numbness	1 (1.8)	0	1 (1.0)	.564

* Within gender

Table 5: Occlusal wear and cervical erosion/abrasion by gender

Condition	Male (%)*	Female (%)*	Total (%)	P Value
Occlusal Attrition - Enamel	9 (16.1)	8 (18.1)	17 (17.0)	.006
Occlusal Attrition - Dentine	0.0	8 (18.1)	8 (8.0)	
Cervical Erosion / Abrasion	9 (16.1)	24 (54.5)	33 (33.0)	<.001

* Within gender

Captagon users, only 2% used by oral route while chewing was common among 21%. Smoking, drinking and chewing were most common modes of drug used (table 2). Duration of drugs abuse was prevalent since 2 years or more than 5 years among majority of the subjects. Tobacco use (smoking), alcohol, and cannabis were three major substances abused (table 3).

TMJ status revealed that clicking was reported by 40.0%, tenderness by 9.0% and reduced jaw mobility by 0.0%. Facial pain was experienced by 6.0% and facial numbness by only 1.0% of the subjects. Male subjects showed significant more clicking than female (P = .014). However, for the tenderness the difference was not statistically significant (P = .151) (table 4). Occlusal enamel wear (attrition) was presented by 16.1% of male and 18.1% of female, while dentine exposure was among female only (18.1%). None of the male had dentine exposure. Sixteen percent of male and 54.5 % females had cervical erosion/ abrasion. There was statistically significant difference between male and female (P = .006). Cervical erosion/abrasion was common among 16.1% male and 54.5% female. This difference was statistically significant (P < .001) (table 5).

Discussion

To the best of our knowledge, this is the first study considering drug addicted population and TMJ status from Saudi Arabia. Previous clinical reports showed severe bruxism, myofascial pain, chewing like movements and tongue rubbing among drug users (22, 23). Iqbal (24) reported that in addition to the well known determinant effects of long term drug abuse and underlined the potential damage to the stomatognathic system as

expressed in the high prevalence of oral motor behaviors and the signs and symptoms of TMD. The most significant findings of that study population were the high prevalence of signs and symptoms of TMD and of nocturnal bruxing and diurnal clenching. Daytime clenching (64%) and self reported sleep bruxism (47%) in the addicted population were higher than those of the control group (29% and 19%, respectively) and other adult population groups studied (20–25%). But in our studied population, clicking was present among 40%, tenderness 9% and facial pain among only 6%. This shows relatively lower percentage of the subjects suffering with tenderness and facial pain than other studies, mentioned above.

It is important to discuss the previous studies from Saudi Arabia, among general population, especially children and orthodontic patients. Among 4–6 years old children from western region of Saudi Arabia (19). It was reported that there was significant correlation between signs and symptoms of TMD and some of the occlusal characteristics including posterior crossbite, edge to edge bite, anterior open bite and class III canine relationship and asymmetrical canine relationship. On the other hand, no correlation was reported between signs and symptoms of TMD and the remaining occlusal characteristics. In another study among school children (21), the most common symptoms were headache (13.6%) and pain on chewing (11.1%). Nail biting was the most common oral para-function (27.7%) while bruxism was the least common (8.4%). The TMD signs were found in 20.7% of the Saudi children with TMJ sounds as the most common. The TMD symptoms were reported by 24.2% of the parents with headache as the most common symptoms. Those studies show that there is lower prevalence of TMD among younger subject school children. In a study

from Riyadh (20), Central Saudi Arabia, clinically, 32% showed a signs of clicking. Masseter and a temporalis palpation showed tenderness in 9% of the sample. Our findings of 40% clicking and 9% tenderness are in accord with AKEEL and AL-JASSER (20), JAGGER a word (26) and NOURALLAH and JOHANSSON (27).

The percentages of symptoms of TMD are less than those reported earlier by ABDEL HAKIM et al. (17). The other difference is that our studied population while cervical erosion/abrasion was present among 16.1% males and 54.5% females. In alcohol abusers, enamel may be dissolved by the alcoholic drink or any mixers it contains and alcohol is a gastric irritant and causes an increase in regurgitation of acidic gastric contents (2).

Cannabis smoke contains more carcinogenic and burns at a higher temperature than cigarette smoke. It is thus not surprising that cannabis can cause oral leukoplakia and there are reported cases of lingual carcinoma in users of cannabis (31). Other effects on the oral mucosa include gingival enlargement (32).

There is a need of identity and screen substance abusers from general population to avoid future burden of costly curative services. The complete oral rehabilitation will improve the quality of life of substance abusers and will enhance their daily performances and social responsibilities.

Conclusions

Within the confines of this study, the following conclusions can be drawn:

- Smoking, alcohol and cannabis addiction were the most common among the subjects,
- 40.0% had clicking of TMJ and 9.0% had tenderness,

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- facial pain was experienced by 6.0% only,
- tooth occlusal wear (attrition) was among 16.0% male and 18.0% male subjects, cervical erosion/abrasion was higher among female than male subjects.

From public health point of view, smoking cessation programs and oral health education should be introduced to adolescents to prevent unhealthy, illicit substance abusing habits in future. Further studies are needed

to assess the oral mucosal changes, dietary pattern, oral hygiene behavior, quality of life and level of satisfaction among the substance abusers from Saudi Arabia.

Acknowledgements

Authors are thankful to the authorities (Ministry of Interiors) to allow conducting the study. All participants are greatly recognized and appreciated for their cooperation during the clinical examination.

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