Original article:

Evaluation the prevalence of moderate chronic periodontitis among smokers and non- smokers in Aljouf province , Kingdom Of Saudi Arabia.

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<u>Abstract</u>

Background: Due to limited data about the prevalence of the moderate chronic periodontitis among smokers and non- smokers in Saudi population this study was conducted. **Methods:** For each participant, full mouth periodontal examination was performed and recorded on a special examination form by one of the 3 examiners. These data included probing depth (PD), clinical attachment level (CAL). The Data was collected and entered into the personal computer. Statistical analysis was done using Statistical Package for Social Sciences (SPSS/version 21) software. Number and percent of each category were calculated, for categorized parameters, chi square test was used. The level of significant was 0.05. **Results:** On comparison the prevalence of moderate chronic periodontitis among the smoker and non- smoker groups, chi square test was 9.114, with (p < 0.05) which is statistically significant, while on comparison the age between the two groups, it was found that there was no significant relation between the age and the different grade of chronic periodontitis. **Conclusion:** Moderate Chronic Periodontitis is more prevalent among smokers in Aljouf province, Kingdom of Saudi Arabia.

Keywords: Smoking, periodontitis, prevalence

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Introduction

Periodontitis is one of the most common chronic inflammatory diseases and one of the major causes of tooth loss in adults.¹ It is generally characterized by progressive irreversible destruction of periodontal ligaments and alveolar bone with pocket formation, recession or both.^{2,3} Periodontitis is a multifactorial disease having a complicated pathophysiology.⁴ However, the formation of periodontal disease pathogenesis is the interaction between periodontopathic bacteria and host immune response, both could be modified by environmental factors like smoking.³ Periodontopathic bacteria initiate the inflammation and repeatedly attack the host,

stimulating an immune response, but the presence of pathogenic bacterial flora alone is not always equal to periodontal destruction.⁵ Whereas, an uncontrolled host inflammatory immune response against pathogens results in the destruction of soft and mineralized periodontal tissues.^{6,7}

Chronic periodontitis is clinically manifested by signs of gingival inflammation (redness, swelling, loss of stippling, bleeding on probing), supragingival and subgingival plaque accumulation (frequently associated with calculus formation), increased probing depth, clinical attachment loss, gingival recession, increased tooth mobility and eventually tooth loss.² Radiographically, there is bone loss that may be

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horizontal or vertical 8,9 Smoking is a potential modifying factor for periodontal disease.^{10.11} Smoking stimulates the host immune response through alteration in neutrophils function, antibody production, inflammatory mediators release, fibroblast activities and vascular factors.¹² Since Chronic periodontitis has a significant impact on the individual life as it may lead to missing of the dentition in some cases, and smoking is considered as an important risk factors for the disease, therefore it is of big interest to increase the awareness of the community about the disease and its risk factors which should be done after collecting data of its prevalence among certain population as it differs from one to another. So this study was conducted to evaluate the prevalence of chronic moderate periodontitis among smokers and non-smokers in Aljouf province, Kingdom Of Saudi Arabia.

Materials and methods

Materials used for study

- 1- Diagnostic set.
- 2- Periodontal probes (William's Probe).
- 3- Periapical films.
- 4- Questionnaire about the demographic data and smoking.

Selection of the patients

The cross sectional study was carried out among patients attending dental OPD, College of Dentistry, Jouf University, Sakaka.

Inclusion criteria

- 1- Male Smokers and non-smokers.
- 2- Age 18-65.
- 3- Patients with chronic periodontitis.

Exclusion criteria

- 1- Patients under current periodontal treatment.
- 2- Patients with systemic diseases
- 3- Patients with any known/diagnosed form of immunosuppression or immunosuppressive medication.

Sampling technique

The samples for the present study were selected by using systemic random sampling technique until desired sample size was achieved.

Sample size

Two hundred and forty male smoker and nonsmoker patients were involved in the study.

Methods

- 1- Informed consent was obtained from patients before the beginning of the study.
- 2- For each participant, full mouth periodontal

examination was performed and recorded on a special examination form by one of the 3 examiners. These data included probing depth (PD), clinical attachment level (CAL). Each tooth, except third molars, was examined by "walking" the periodontal probe around the whole circumference of the tooth. PD and CAL were measured at six sites per tooth (mesio-, mid-, and disto-buccal; mesio-, mid-, and disto-lingual/palatal).

3- As a general guide, severity was categorized by the amount of clinical attachment loss (CAL) as follows: mild: 1-2 mm (CAL), moderate: 3-4 mm (CAL), and severe: ≥ 5mm (CAL).¹⁰

Statistical analysis

The Data was collected and entered into the personal computer. Statistical analysis was done using Statistical Package for Social Sciences (SPSS/version 21) software.

Number and percent of each category was calculated, for categorized parameters, chi square test was used. The level of significant was 0.05.

<u>Results</u>

Table (1), shows the prevalence of moderate chronic periodontitis among smokers and non -smokers in Saudi population, it was found that there was a significant increase in moderate chronic periodontitis in smokers than the non-smokers. (p < 0.05).

	Smokers "n=120"		N o n smokers "n=120"			
	No.	%	No.	%		
Mild chronic periodontitis	36	30.0	58	48.3		
Moderate chronic periodontitis	60	50.0	48	40.0		
Sever chronic periodontitis	24	20.0	14	11.7		
X ²	9.114					
р	0.0105*					

Table (1): Prevalence of chronic moderateperiodontitis among smokers and non smokers

Table (2), shows the age distribution among the two studied groups in relation to chronic periodontitis grade, it was found that there was no significant relation between the age and the different grade of chronic periodontitis. International Journal of Human and Health Sciences Vol. 02 No. 03 July'18

	Smokers "n=120"					Non smokers "n=120"						
Age group	Mild		Moderate		Severe		Mild		Moderate		Severe	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
18-35	7	19.4	10	16.7	2	8.3	4	6.9	4	8.3	0	0.0
35-50	8	22.2	25	41.7	8	33.3	35	60.3	24	50.0	6	42.9
50-65	21	58.3	25	41.7	14	58.3	19	32.8	20	41.7	8	57.1
Total	36		60 24		24	58			48		14	
X ²	5.34					2.671						
р	0.254					0.614						

Table (2): Age distribution among the two studied groups in relation to chronic periodontitis grade.

Discussion

According to the World Health Organization (WHO), tobacco use continues to be a major public health burden and the most preventable cause for mortality worldwide.¹³ The primary aim of the present study was to assess the prevalence of chronic periodontitis among smokers to increase the awareness of tobacco use as a risk factor for chronic periodontitis patients.

Cigarette smoking has been shown to be responsible for accelerated periodontal destruction and increased risk of periodontitis in young adults.14 The results of the present study showed that Chronic Moderate Periodontitis among Smokers in Aljouf province (KSA) was significantly more prevalent than in Non-smokers. There is accumulating evidence for a higher level of periodontal disease among smokers. Greater levels of clinical alveolar bone loss, tooth mobility, probing pocket depthand tooth loss have all been reported to be more severe in smokers than in nonsmokers.15

Brurberg KG et al. A total of 38 relevant research papers were identified by the systematic literature search. Tooth loss among patients undergoing periodontal therapy was reported in one of the included studies, and showed a statistically insignificant trend towards increased risk of tooth loss in the smoker group. In comparison of smokers to non-smokers, smokers may probably show poorer post-therapeutic prognosis following periodontal treatment which are in line with the current study.¹⁶

The findings of this study were in line with the previous reports that stated that smoking favors colonization by the specific periodontopathic bacteria including C. rectus, and that this contributes to the disease severity in smokers.¹⁷ Moreover, a review of the literature over the past 20 years has demonstrated a positive correlation between cigarette smoking and a higher risk for periodontal disease.^{18,19}

The results of the current study could not detect any significant correlation between the age of the patients and different grades of Chronic Periodontitis. Meanwhile, another study found a high prevalence of cigarette smoking among young individuals with aggressive periodontitis and that tobacco use increases the risk of periodontal destruction most significantly in young populations. Although, Susin C et al. concluded that population of adolescents and young adults had a high prevalence of chronic periodontitis, and its presence was associated with age, socioeconomic status, smoking and calculus.²⁰

Conclusion

Moderate Chronic Periodontitis is more prevalent among smokers in Aljouf province, Kingdom of Saudi Arabia.

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