

ORIGINAL ARTICLE

The Prevalence of Localized Aggressive Periodontitis among Girl Students in the city of Tehran

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ABSTRACT

The prediction of localized aggressive periodontitis (LAgP) is important to improve community oral health. Also, the dentistry protective programs are much more important to done among young generation. So, the aim of the current study was to determine localized aggressive periodontitis prevalence among school girl students. A descriptive study was performed using 2750 out of high school girl students (aged 14-16 years) in Tehran. The experiment was conducted in 2 stages. First, students were probed around the first molars and incisors in both jaws. Any surface of dental probing depth ≥ 4 mm was considered as suspects. In the second stage, existence of permanent incisors (≥ 1 mm), first molars AL and interproximal bone loss in the molar region, distance between the CEJ and the septum crest Ayntrdntal (≥ 2 mm) were considered as those with LAgP. According to the results, among to the volunteers, only 14 students had dental probing depth ≥ 4 mm. Also, in 8 patients no radiographic signs of alveolar bone loss around first molars and incisors were observed. The interproximal bone loss was detected in one patient in first mesial molar of right mandible. However, there was no sign of LAgP among patients. The Loe-Sillness test revealed high plaque index (PI) and gingival index (GI) suspected patients. These results suggest, there was no high rate of periodontitis prevalence in 16-14 year old girl students in Tehran.

Keywords: Localized aggressive periodontitis, Probing depth, Bone loss, Plaque index, Gingival index

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INTRODUCTION

Periodontitis is defined as "an inflammatory disease of the supporting tissues of the teeth caused by specific microorganisms or group of specific microorganisms, resulting in progressive destruction of the periodontal ligament and alveolar bone with pocket formation, recession or both [1]. Localized aggressive periodontitis (LAgP) is an inflammatory disease and usually present circumpubertal onset and localized first molar/incisor presentation with interproximal attachment loss on at least two permanent teeth, one of which is a first molar, and involving no more than two teeth other than first molar and incisors while generalized aggressive periodontitis presents generalized interproximal attachment loss affecting at least three permanent teeth other than first molars and incisors with pronounced episodic nature of the destruction attachment and alveolar bone [2].

LAgP is a rapidly progressive form of periodontal disease affecting the periodontal tissues of young patients and can result in tooth exfoliation at a young age [3]. Also, Albandar, *et al.* [4] report among 12-25-year old who attended Ugandan schools 6.5% aggressive periodontitis (either localized or generalized) and 22% incidental aggressive lesions. Similarly, other ethnical groups show high prevalence of this disease; in a recent study, LAgP was found in 5.9% of the subjects [6]. In a study, Lafzi *et al.* [5] studied the prevalence of LAgP in 14-16 years old school students in Tabriz. Based on their report, LAgP exists among the 14-16 years old students. The total LAgP in 14-16 years old is 0.5-0.6% for boys and 0.45% for girls.

LAgP has been defined using the following criteria, age of onset, distribution of lesions, severity of destruction, rate of progression, and response to therapy. As seen several criteria paly role on prevalence

of LAgP. So, the aim of the current study was to determine the prevalence of localized aggressive periodontitis among girl students in the city of Tehran.

MATERIAL AND METHODS

This study was conducted as descriptive study using 2750 out of high school girl students in Tehran. The inclusion criteria were all students with average age of 14-16 years old and being in secondary school. The exclusion criteria were dental caries or high rate of plaque accumulations, orthodontic treatments and/or systematic disease related to periodontitis. This cross-sectional study was done on 2750 students from 5 different regions school in Tehran, Iran. The experiment was conducted in 2 stages. First, students were probed around the first molars and incisors in both jaws. The investigation was done based on the protocol previously described by Bear [7]. Each subject was educated about the benefits of the study and all personal information was kept as secret. Any surface of dental probing depth ≥ 4 mm was considered as suspects. In the second stage, existence of permanent incisors (≥ 1 mm), first molars AL and interproximal bone loss in the molar region, distance between the CEJ and the septum crest Ayntrdntal (≥ 2 mm) were considered as those with LAgP. All protocols for experiments were approved by the institution of Ethical Committee.

Statistical analysis

Data were analyzed with descriptive statistics and statistical using T-test by the SPSS 21 Windows and is presented as mean \pm sd. $P < 0.05$ was considered as significant differences between treatments.

RESULTS

The prevalence of localized aggressive periodontitis among girl students in the city of Tehran is presented in tables 1 and 2. According to the results, among to the volunteers, only 14 students had dental probing depth ≥ 4 mm.

School Regions	Stage 1		Stage 2	
	N=student	LAgP suspected	N=student	LAgP
1	700	0	0	0
2	780	10	8	0
3	400	0	0	0
4	435	0	0	0
5	400	4	1	0

In the second stage of the experiment, only 9 patients referred to the dental clinic which among them in 8 patients no radiographic signs of alveolar bone loss around first molars and incisors were observed. The interproximal bone loss was detected in one patient in first mesial molar of right mandible. However, there was no sign of LAgP among patients. The Loe-Sillness test revealed high accumulation of plaque and GI suspected patients.

Patients	Age (year)	Plaque index	Gingival index
1	15	2.79	2.81
2	15	2	3
3	15	2.17	2.25
4	15	2.09	3
5	15	2.81	2.5
6	16	2.88	2.58
7	16	1.92	2.12
8	16	2.08	2.66
9	16	2.14	2.03

DISCUSSION

Periodontal diseases are a group of conditions affecting the supporting structures for the dentition. The periodontal tissues consist of a specialized form of oral mucosa known as gingiva, which has a keratinized epithelium and covers the alveolar bone. There is an epithelial attachment between the enamel of the tooth and the marginal gingival which is formed from the fusion of reduced enamel epithelium and the oral epithelium and is known as junctional epithelium when tooth eruption is completed [8].

Localized aggressive periodontitis is a distinct entity of periodontal disease and is characterized by deep vertical bony defects that typically affect the first molars and incisors of young patients. According to the results, among the volunteers, only 14 students had dental probing depth ≥ 4 mm. Also, in 8 patients no radiographic signs of alveolar bone loss around first molars and incisors were observed. The interproximal bone loss was detected in one patient in first mesial molar of right mandible. However, there was no sign of LAGP among patients. The Loe-Sillness test revealed high accumulation of plaque in PI and GI suspected patients.

In the previous literature, the diagnosed cases revealed that 1.0% (4 individuals) had generalized and 0.8% (3 individuals) had localized forms of the disease. Cortelli *et al.* [9] and Carvalho *et al.* [10] also observed higher prevalence of generalized than localized aggressive periodontitis. Also, Carvalho *et al.* [9] suggested genetic factors in the occurrence of aggressive periodontitis [1]. Marazita *et al.* [11] demonstrated that siblings of individuals with aggressive periodontitis may also be affected. Aggressive periodontitis can be localized or generalized aggressive periodontitis. The localized form was more common than the generalized form. The frequency of systemic manifestations such as fatigue, weight loss and loss of appetite was greater in aggressive periodontitis [12].

Localized aggressive periodontitis occurs in children and adolescents without clinical evidence of systematic disease and is characterized by the severe loss of alveolar bone around permanent teeth. Frequently the disease is localized to the permanent first molars and incisors [10]. In contrast, in a study by Imran *et al.* [13] in Yemeni students, subjects with localized aggressive periodontitis (2.6%) were much higher compared to generalized aggressive periodontitis (1%). Similarly, Chandra Kumar *et al.* [14] reported a higher prevalence of localized aggressive periodontitis (71%) as compared to generalized aggressive periodontitis (29%). The variation in prevalence ratios in these previous studies as compared to the present study may reflect the influence of the genetic and environmental factors due to the varying geographical locations.

Some epidemiological studies have shown that the prevalence of periodontal disease is often higher among young females. Baer [7] estimated that the female/male ratio was about 3:1, suggesting that females are 3 times more likely to develop the disease than males. The influence of periodontal disease on the human psychological condition has not highlighted much in the past literature. The present study demonstrates an association between aggressive periodontitis and both of anxiety and depression. It would be of interest to know how periodontitis (especially aggressive periodontitis) is related to anxiety and depression. A probable mechanism that explains the relation between stress and periodontal disease is the deregulation of the immune system, mediated primarily through the hypothalamic-pituitary-adrenal and sympathetic-adrenal medullary axes [15].

Localized aggressive periodontitis the only teeth affected are the first molars and incisors. Although there are cases in which aggressive periodontitis has been arrested for some time after periodontal therapy, aggressive periodontitis develops as localized disease and then may progress into a generalized form with the involvement of more teeth with advancing age [16]. Therefore, periodontologists should inform patients of the presence of aggressive periodontitis characterized by rapid attachment loss and bone destruction, early onset, and the difference between aggressive periodontitis and chronic periodontitis. They should also encourage younger patients to get regular periodontal checkups and treatment. Further epidemiologic, clinical and genetically based studies for providing exact diagnosis and treatment of aggressive periodontitis will be needed [17].

CONCLUSION

Localized aggressive periodontitis is an early-onset type of periodontitis and the prevalence of localized aggressive periodontitis in this study correspond to other studies in general. Further studies recommend for clarifying the causes of disease and evaluation of younger children.

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