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**LOCALIZED AGGRESSIVE PERIODONTITIS IN 14-16 YEARS OLD SCHOOL  
STUDENTS IN ALBORZ PROVINCE, IRAN**

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**ABSTRACT**

The main purpose of current study was to determine localized aggressive periodontitis (LAgP) in school students. A descriptive study was performed using 2454 out of high school girl students (aged 14-16 years) in 14-16 years old school students in Alborz Province, Iran. 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  $\geq 4$ mm was considered as suspects. In the second stage, existence of permanent incisors ( $\geq 1$ mm), first molars AL and interproximal bone loss in the molar region, distance between the CEJ and the septum crest Ayntrdntal ( $\geq 2$ mm) were considered as those with LAgP. As seen, among 5 of 6 patients, no radiographic signs of alveolar bone loss around first molars and incisors were observed. In only one patient interproximal bone loss in first mesial molar of right mandible without high plaque index (PI) and gingival index (GI) was detected. These results suggest, there was no high rate of LAgP in 14-16 years old school students in Alborz Province, Iran.

**Keywords: LAgP, School students**

**INTRODUCTION**

Periodontitis is a multifactorial disease that involves infection and inflammation of supporting periodontal tissues leading to their destruction (Borrel et al. 2008). Based on the rate of progression periodontitis can be broadly classified into localized and

aggressive forms (Borrel et al. 2008). The diagnosis of periodontal disease demands a firm knowledge of what constitutes periodontal health. Aggressive periodontitis is a rapidly progressing disease whose main characteristics are accelerated loss of

periodontal attachment and alveolar bone. Individuals classified as having aggressive periodontitis may otherwise be healthy. Familial aggregation seems to be frequent (Newman et al. 2010). 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 (Tonetti et al. 1999).

Traditionally, the diagnosis of the presence of periodontal diseases is made on the basis of evaluation of clinical signs and symptoms and may be supported by evidence from radiographs. Gingival changes including color, contour, texture alterations and the presence of bleeding on probing from the gingival tissues allow the diagnosis of plaque induced gingival diseases. No plaque induced gingival diseases may necessitate other investigations such as histopathology, microbiology or serology to affect a diagnosis (Milward and Chapple, 2003).

Estimates around the world are 0.8% in North America, 1.0% in South America, 0.5% in Western Europe, 5.0% in Africa and 1.0 in Asia (Borrel et al. 2008). In a study, Lafzi et al. (2005) 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 0.6% for boys and 0.4% for girls. So, the aim of the current study was to determine LAgP in high school girl students in Alborz Province, Iran.

## MATERIAL AND METHODS

All protocols for experiments were approved by the institution of Ethical Committee. This study was done using 2454 out of high school girl students (aged 14-16 years) in Alborz Province, Iran. The inclusion criteria were all students 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 2454 students from 5 different regions school in Alborz Province, 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 (1971). Each subject was educated about the benefits of the study and all personal information was kept as secret. Any surface of dental probing depth  $\geq 4$ mm was considered as suspects. In the second stage, existence of permanent incisors ( $\geq 1$ mm), first molars AL and interproximal bone loss in the molar region, distance between the

CEJ and the septum crest Ayntrdntal ( $\geq 2\text{mm}$ ) were considered as those with LAgP.

### 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 LAgP among girl students in Alborz province, Iran is presented in table and figure 1. As seen in table 1, five regions of the Alborz province schools were included in this study and the average of students from each was approximately uniform. As observed only 6

LAgP suspected girl find among a total of 2454 students. Also, in the stage 2 of the study, 6 students referred to the dental school which no patient with LAgP was identified.

The PI and GI of the localized aggressive periodontitis among girl student are shown in figure 1. According to the data, the GI was a bit more between 6 patients referred to the dental clinic. Among 5 of 6 patients, no radiographic signs of alveolar bone loss around first molars and incisors were observed. In only one patient interproximal bone loss in first mesial molar of right mandible without high PI and GI was detected.

School Regions	Stage 1		Stage 2	
	N=student	LAgP suspected	N=student	LAgP
1	644	5	3	0
2	536	0	0	0
3	423	2	2	0
4	416	1	1	0
5	435	0	0	0

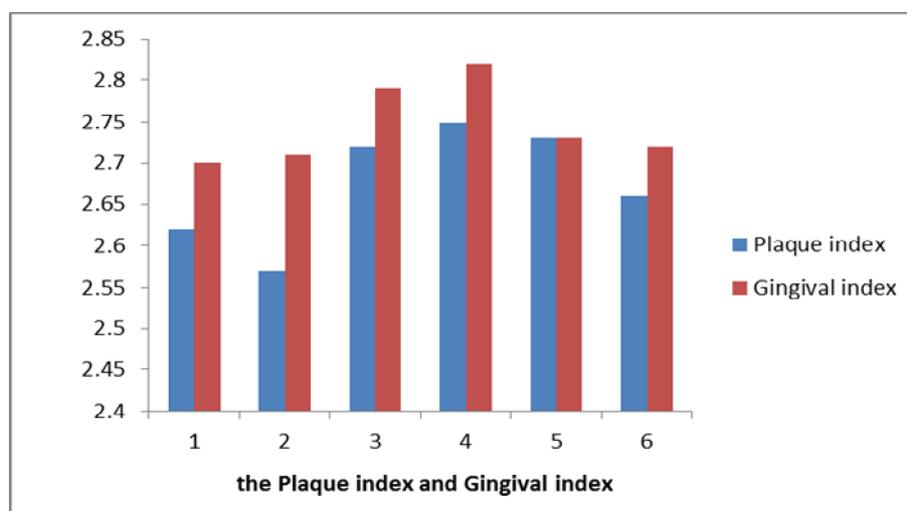


Figure 1. The Plaque index and Gingival index of the localized aggressive periodontitis among girl students in the Alborz province, Iran (mean age of patients 15-16 years old)

## DISCUSSION

According to the results, there was no high rate of LAgP in 14-16 years old school students in Alborz Province, Iran. Oral hygiene instruction and motivation should be performed after placement of the orthodontic appliances. In previous reports, López et al. (2001) found prevalence estimates of 4.5 and 3.7% of CAL  $\geq$  3 mm in all sites and only interproximal sites, respectively, in a representative sample of high school students from Chile, in contrast to the 100% estimate found in this study. In Brazil, AgP prevalence has been observed in the age group of 12-19 years ranging from 0.3% to 2.5% (Gjeramo et al. 1984).

In other isolated and untreated populations, prevalence estimates of 16.3% for CAL  $\geq$  4 mm found in a group of 14-19-year-old Navajo Indians, contrasting with the prevalence of 40% (Wolfe and Carlos, 1984). Also, Timmerman et al. (2000) observed CAL  $\geq$  5 mm in 8% of 15-25 year-old Indonesia tea-workers, contrasting with our finding of 19% for the same age grouping and CAL thresholds. Many reports suggest that AgP subjects generally form very little supragingival dental plaque or calculus. However, few studies have assessed the effect of local plaque-retaining factors in the occurrence of periodontal attachment loss in young age cohorts (Hashim et al. 2001).

Epidemiological studies have shown that the prevalence of periodontal disease is often higher among young females, which might be related to their earlier eruption of first molars and incisors (Hugoson et al. 2002). The current study indicated that there is a strong relationship between the low socioeconomic level and LAgP among students (Kazem and Albandar, 2006). The considered risk factors have clearly demonstrated that the prevalence of LAgP among students from poor families is higher in comparison to rich families. Moreover, this result suggests that the low socioeconomic level is considered a positive risk factor for the development of aggressive periodontitis (Van Dyke and Dave, 2005). This conclusion agrees with results drawn from previous epidemiological studies. It can be noted that oral hygiene status may play an important role in the occurrence of LAgP, as this study yielded that the prevalence of LAgP among students who are not using toothbrush is much higher than among those students who are usually using toothbrush (Haubek et al. 2008).

LAgP occurs in children and adolescents without clinical evidence of systemic disease and is characterized by the severe loss of alveolar bone around permanent teeth (Moore and Moore, 2000). Frequently, the disease is localized to the

permanent first molars and incisors. However, some retrospective data obtained from LAgP patients suggest that bone loss around the primary teeth can be an early finding in the disease (Leino et al. 1994). Many reports suggest that patients with LAgP generally form very little supragingival dental plaque or calculus. Successful treatment of aggressive periodontitis depends on early diagnosis, directing therapy against the infecting micro-organisms and providing an environment for healing that is free of infection (Hurttia et al. 1997). While there is some disagreement among individual studies regarding treatment of LAgP, most authors recommend a combination of surgical or non-surgical root debridement in conjunction with antimicrobial (antibiotic) therapy (Stephen et al. 2011). The majority of reports suggest that the use of antibiotics is usually beneficial in the treatment of LAgP (Stephen et al. 2011).

### CONCLUSION

As observed LAgP is an early-onset type of periodontitis and the prevalence of LAgP 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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