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Research Article

Correlation Analysis Between OHI-S and PBI-S Ainamo and Bay in Children Aged 6 Years

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Abstract

Introduction: When assessing the oral or hygienic status of a group, community, or population, different assessment systems are used to choose specific teeth and surfaces. A total numerical expression of the hygienic state is calculated and the digital index is called an oral hygiene index. The aim of the study is to describe the relationship between OHI-S and PBI-S in childhood.

Material and Methods: Object of observation. The study is about the oral hygiene status of 60 children aged 6 years. Oral-Hygiene Index, OHI-S Greene and Vermillion (PI / 6 + CI / 6) - (Modified) is used to establish Oral Hygiene status. The research also includes the condition of the gingiva by evaluating the Papilla Bleeding Index (PBI-S) - Ainamo and Bay. Location of the study: University Medical Dental Center Varna, Faculty of Dental Medicine. After processing the results and determination of the highlights was conducted by actual survey data processing package for mathematical and statistical analysis SPSS v 20.0.

Results: Comparison of OHI-S results according to PBI showed the presence of a statistically significant difference ($F = 34.63$; $p < 0.001$), with a tendency for OHI-S to increase with an increase in the percentage of PBI-S. In examining the relationship between OHI-S and PBI, an extremely strong direct correlation was found ($r = 0.923$; $p < 0.001$).

Conclusion: 1. PBI correlation analysis of OHI-S results showed a statistically significant difference. 2. The average value of OHI-S increases with an increase in the percentage of PBI-S.

Keywords: Oral hygiene status; OHI; PBI; Mixed teeth

1. Introduction

According to Juke Ainamo, 1992, the system of periodontal indexes of the last 50 years provides us with the opportunity to improve the understanding of the second most relevant group of oral diseases or periodontal diseases. Since the early 1940s there have been epidemiological studies on the prevalence and severity of periodontal disease. The evaluation of the oral hygiene status of the individual is obtained from the visual coloration of the dental plaque biofilm. When assessing the oral or hygienic status of a group, community, or population, different assessment systems are used to choose specific teeth and surfaces. A total numeric expression of the hygienic state is calculated and the digital index is called an oral hygienic index [1].

Gingival condition assessment is determined by its color, humidity, interdental papillary state, gingival edge, consistency, gingival surface, width of the attached gingiva, and the diagnosis of oral mucosal lesions. Some authors such as Sebastian G. Ciancio (1986) and Stanley P. (1974) believe that the indicators show the correlation between the various criteria used and histological signs of inflammation, especially in the case of bleeding and symptoms of bleeding inflammation [2, 3].

Stuart L. Fischman and Peters BM et al. reported that the indices were chosen to assess the patient's oral hygiene status. This assessment should be as objective and easy as possible [5, 8].

Kakar A et al. in 2014 reported that the Board of the American Dental Association of Dental Therapy adopts guidelines for the acceptance of chemotherapeutic products for the control of dental plaque and gingival Inflammation [9-11].

Charles C. H. et al., 2004 and Riep B.G. et al., 1999, conducted studies using the most extensively the dental plaque biofilm indexes (PI) and the Turesky index. Gingival inflammation is generally assessed using the Loe and Silness method [12]. In these studies, however, the modified Lobene gingival index and the bleeding index reported by Caton and Poison were used. Initially, patients had complete oral hygiene studies on soft tissues. The gingival index of Loe-Silness (GI), Quigley-Hein plaque index (PI), Volpe-Manhold (CI), and Lobene index (SI) were reported. GI decreased by 14.0% and 18.2%, respectively, and the differences were statistically significant ($p < 0.001$). PI reductions compared to the control and were not statistically [6,7].

According to Markant S. et al. 2001, Streptococcus mutans form a much larger part of the flora in the caries lesion whereas Streptococcus oralis, Streptococcus sanguis and Streptococcus gordonii form a much larger part of the microbial flora of the dental plaque biofilm and on the smooth, healthy teeth surfaces. The ratio of Actinomyces naeslundii and Actinomyces odontolyticus is significantly higher in dental plaque than in cavity caries lesion samples. Each species is genotypically heterogeneous and different genotypes are recovered from different carious

teeth in the same patient- child [13]. Kressirer CA et al., 2017 suggests that S. wiggsiae has many of the characteristics corresponding to its species and is associated only with tooth decay [14].

On the other hand, Foxman B. et al. in 2016 prove that the members of the families also have generic genes. The environmental and microbial communities also have an influence on the formation of dental plaque. If there is such a strong effect of family influence on salivary microorganisms, family control will improve the detection of microbial colonies associated with dental caries etiology [15].

In 1977, the World Health Organization (WHO) [16] proposed a new index CPITN, the Community Periodontal Index of Treatment Needs, and an assessment of the need for periodontal treatment of populations [4]. Periodontal screening is an easy and fast method of detecting periodontal diseases. Clinical signs are assessed - the presence of bleeding (during with a probe), the presence of supra- and sub-gingival tartar and the presence of gingival pockets with a depth of 4 mm or more.

In the United Kingdom, this index is applied clinically, such as Basic Periodontal Examination (BPE) [17], and in the USA as Periodontal Screening and Recording (PSR) [18].

2. Objective

The aim of the study is to describe the relationship between OHI-S and PBI-S in childhood.

3. Material and Methods

Object of observation. The study is about the oral hygiene status of 60 children aged 6 years. Study period 2015-2016 years. Oral-Hygiene Index OHI-S Greene-Vermillion (PI / 6 + CI / 6), (Modified) is used to establish Oral Hygiene status. The research also includes the condition of the gingiva by evaluating the Papilla Bleeding Index (PBI-S) - Ainamo and Bay (simplified). We estimate the bleeding gingiva after probing in the gingival sulcus of the distal papilla of each tooth, which is a sign of inflammation. The index is generally representative after 2 years of age when all primary teeth have erupted, in order to avoid false-positive results with changes in the gingiva associated with the eruption (eruptive gingivitis).

A periodontal probe is probed in the gingival sulcus of the distal papilla of each tooth. The probing is done vestibular in V and VII quadrant and orally (lingual) in the VI and VIII quadrant. After the probing, wait 10 seconds for each distal papilla examined. The intensity of bleeding is reported in 2 stages: 0- Missing bleeding during probing; 1- There is bleeding when probing. Results reading: PBI-S is calculated by dividing the sum of the ratings of all probing points by the number of papillas examined. The assessment codes and the PBI-S value in % are recorded in the medical cards of each patient (6 year old).

Location of the study: University Medical Dental Center Varna, Faculty of Dental Medicine, Varna with the permission of the University Scientific Research Committee and informed consent signed by each parent. The research is retrospective. Data analyzed in this study are taken from ambulatory journals and patients' medical cards. The researchers are specialists at Pediatric Dentistry. After processing the results and determination of the highlights was conducted by actual survey data processing package for mathematical and statistical analysis SPSS v 20.0.

4. Results

The results of the oral hygiene index survey of 60 children aged 6 years showed an OHI-S average value of 1.55 ± 0.70 (SD), with a minimum of 0.3 and a maximum of 3.0. Good oral hygiene status have 36.70% of the tested children, while 26.70% are bad.

Papilla bleeding index (PBI-S) study showed an average of 4.55% ± 2.21%, with a minimum value of 0% and a maximum of 8%. The highest relative share of children with PBI-S is 4% - 18.30%, with children with PBI-S from 5% to 7% having a total share of 45% of the sample (Figure 1).

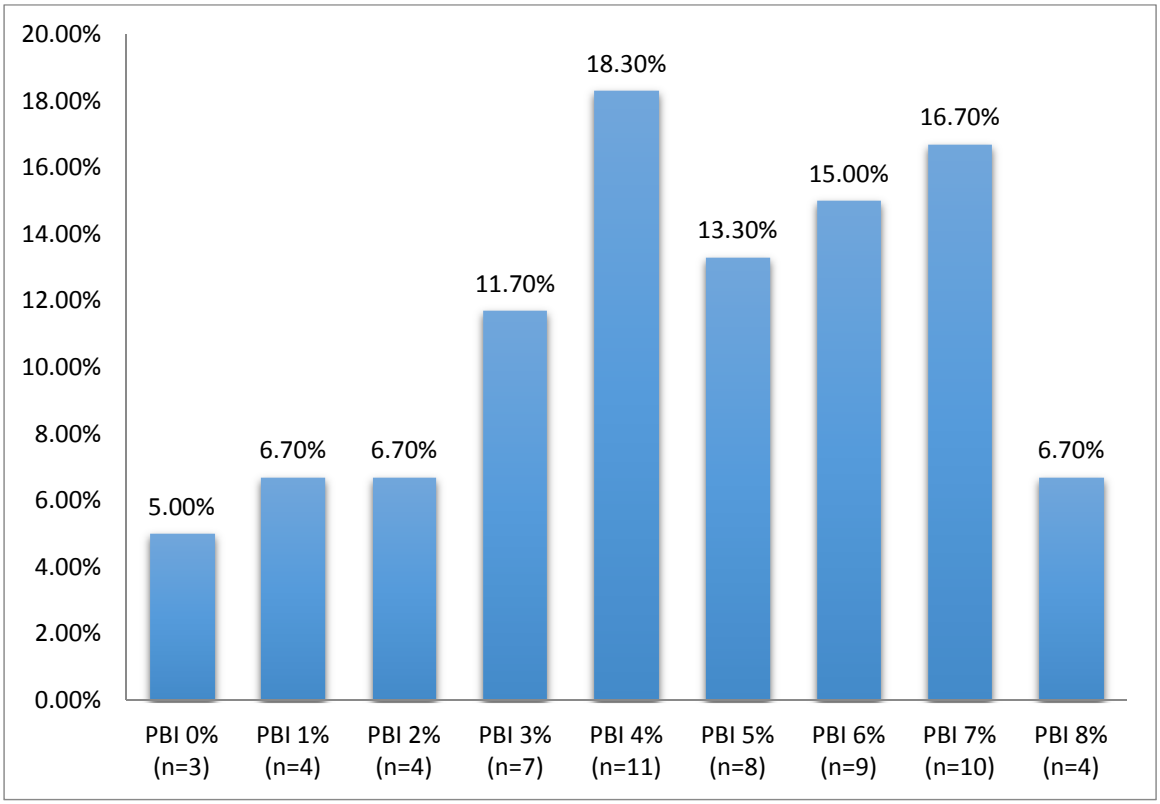

Figure 1: Distribution of children by PBI-S groups

Comparative analysis of OHI-S results according to PBI-S showed the presence of a statistically significant difference ($F = 34.63$; $p < 0.001$). There is a tendency for OHI-S to increase with an increase in the percentage of PBI-S.

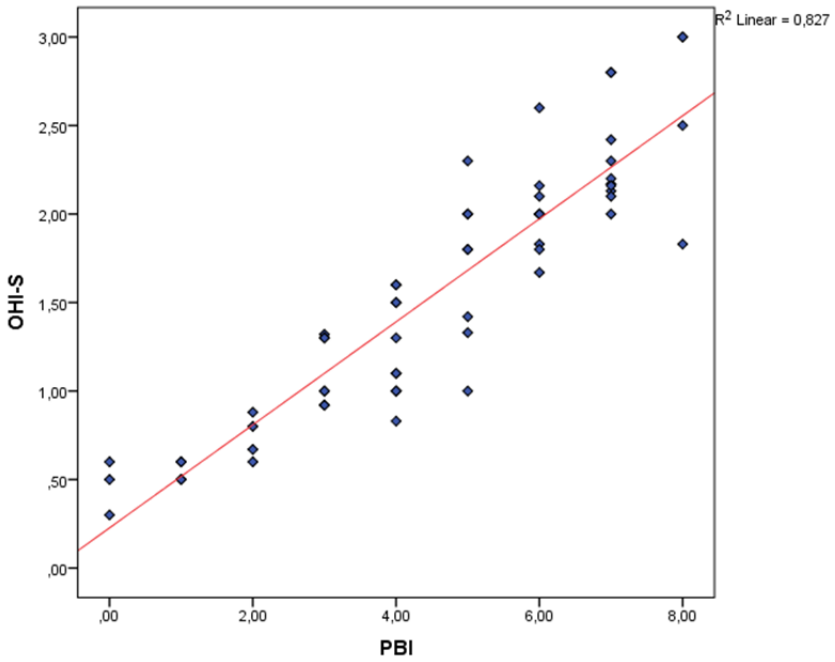

Figure 2: Correlation analysis between OHI-S and PBI-S

The relationship between OHI-S and PBI-S revealed an extremely strong direct proportional relationship ($r = 0.923$; $p < 0.001$).

5. Conclusion

1. PBI correlation analysis of OHI-S results showed a statistically significant difference.
2. The average value of OHI-S increases with an increase in the percentage of PBI-S.

6. Declaration of interests

The authors declare that they have no conflict of interest.

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