

## INTERDENTAL CLEANING AT PATIENTS WITH PERIODONTAL DISEASE

ODRŽAVANJE HIGIJENE INTERDENTALNIH PROSTORA KOD PACIJENATA SA PARODONTOPATIJOM

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### ABSTRACT

The aim of this study is to determine the knowledge and motivation of periodontal patients concerning the use of supplementary items for oral hygiene and to establish the effects of these items in care for interdental space. For this purpose we conducted a questionnaire on 200 patients at the Clinic of Periodontology and oral pathology who were diagnosed with periodontal disease. They were instructed and motivated for using dental floss or interdental brush depending on the indication. It was recommended to the patients to apply the mentioned items to one region only while the counter section was used as a control parameter. Degree of dental plaque and index on gingival inflammation and bleeding were determined in patients before using these items and one month after using dental floss or interdental brush. The results were statistically analyzed and the significance of the differences was determined by Students t-distribution. Part of the patients were informed about the using supplementary items for oral hygiene, while part of them were motivated for using them. In the group of patients using interdental brush and floss significant reduction was recorded on the quantity of plaque and gingival inflammation in the section they have been applied.

**Key words:** oral hygiene, interdental brushes, dental floss.

### SAŽETAK

Cilj ove studije je da se utvrdi poznavanje i motivacija pacijenata sa parodontopatijom, koji se odnose na upotrebu dopunskih sredstava za održavanje oralne higijene i da se utvrdi učinkovitost ovih sredstava u održavanju interdentalne higijene. Za tu svrhu proveli smo upitnik kod 200 pacijenata oboljelih od parodontopatije, na Klinici za parodontologiju i oralnu patologiju. U saglasnosti sa indikacijama, pacijenti su bili obučeni i motivirani za korištenje interdentalnog konca ili interdentalne četkice. Studija je dizajnirana, tako da pacijenti upotrebljavaju navedena sredstva samo na jedan zubni segmenat, a kontralateralna strana je korištena kao kontrolni parametar. Indeks dentalnog plaka i indeksi upale desni i krvarenja određivani su prije upotrebe i jedan mjesec nakon upotrebe zubnog konca ili interdentalne četkice. Dobiveni rezultati su statistički analizirani, a značajnost razlika je određivana pomoću Student t-distribucije. Veći broj pacijenata je bio informiran o korištenje dopunskih sredstava za oralnu higijenu, a dio pacijenata je bio motiviran da ih upotrebljava. U grupi pacijenata koji su upotrebljavali interdentalne četkice i konac zabilježeno je značajno smanjenje količine plaka i upale desni u segmentu u kome su ova sredstva korištena.

**Gljučne riječi:** oralna higijena, interdentalne četkice, dentalni konac

## Introduction

Periodontal diseases are serious chronic infections that involve destruction of the tooth-supporting apparatus, including the gingiva, the periodontal ligament, and alveolar bone. These diseases are initiated by a local accumulation of bacteria adjacent to the tooth.

The disease is characterized by multiple symptoms in different stages of disease present with different intensity. They are: inflammation, recession, periodontal pocket, exudate, sub-gingival dental calculus, luxation and migration.

Inflammation of the gingiva, as one of the clinical signs of periodontal disease, is strongly associated with presence of dental plaque. In view of the fact that pathogenic reactions during periodontal development have inflammatory character, the elimination of inflammation is a required element of periodontal prophylaxis and therapy. Therefore, education and motivation of patients to maintain oral hygiene and to reduce the plaque accumulation is the first step towards successful control of periodontal disease.

Motivation, will and training of patients, binding themselves to carry out oral hygiene and to control the level of dental plaque without causing disease are the most effective preventive measures having no better alternative. Usage of these preventive measures are equally important for people with preserve oral health so as for those having discreet or serious aberration in oral health [1,3,4,7,13].

The level of oral hygiene necessary to stop the progression of periodontal disease is individual for every patient. [12,14] Some of patients are informed and motivated for removing the plaque from interdental spaces of teeth (care for interdental spaces).

It is essential for the patients with periodontal disease to perform perfect inter-dental cleaning in order to preserve the periodontal health. Regular interdental cleaning and established habit for its continuous implementation is the main goal of educational process and instructions related to oral hygiene at the patients with periodontal disease [2, 4, 8, 10, 11, 12].

There were three types of interdental spaces:

Type 1: interdental space is fully completed with gingival,

Type 2: small recession of gingiva, making the part of interdental space empty,

Type 3: remarkable or complete loss of interdental papilla making inter-dental spaces agape.

For maintaining regular oral hygiene, especially hygiene of interdental spaces, relevant informing of patients is of specific meaning. The research, implemented at pupils in high school, showed that pupils are mostly not informed about the regular oral hygiene and care of inter-dental spaces. 80% of pupils were not informed about supplementary items for oral hygiene: interdental brush, dental floss, stimulators, and other items. Just 11% of pupils were informed about the use of supplementary items for oral hygiene. Information was given by dentist.

The aim of the study was to detect the level of information about periodontal disease, to increase motivation for using supplementary items for oral hygiene, and to record the effects of their use in the inter-dental spaces care.

## Material and methods

For this purpose, we conducted a questionnaire on 200 patients on the Clinic of periodontology and oral pathology who were diagnosed with periodontal disease. Questions were related to the knowledge for regular oral hygiene and to supplementary oral hygiene items. At the first visit, dental plaque and dental calculus with ultrasonic instrumentation at all patients were removed. We recommended the usage of dental floss or interdental brush in accordance to the indications. 70 patients were instructed to use interdental brush, and 90 patients to use dental floss only in one section. Counter section was control parameter. Control examinations were conducted once at month, and patients were followed up for 3 months. We noticed IDP (Silness-Loe) at patients and IGI (Loe-Silness). The results were statistically analyzed and the significance of the differences was determined by Students t - distribution.

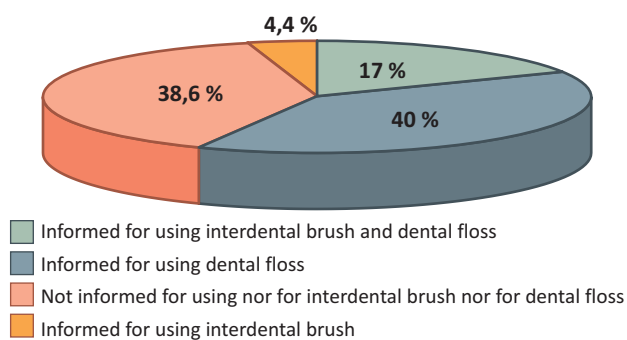


Figure 1.

Informed about the use of dental floss and inter-dental brush at 200 patients

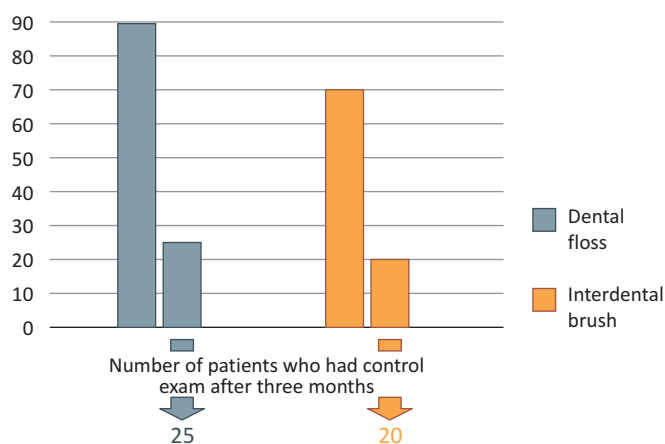


Figure 2.

Motivation of patients for using dental floss and interdental brush

	Control section* n = 25	Examine section** n = 25
X	1,20	0,56
SD	0,70	0,58
t		3,30
p		0,0016*

\* Section where dental floss isn't used

\*\* Section where dental floss is used

Table 1.

Index levels of dental plaque at patients after three months of using dental floss

	Control section* n = 25	Examine section** n = 25
X	1,12	0,68
SD	0,60	0,55
t		2,68
p		0,009*

\* Section where dental floss isn't used

\*\* Section where dental floss is used

Table 2.

Index levels of gingival inflammation at patients after three months of using dental floss

## Results

Figure 1 shows data regarding information about the usage of dental floss and interdental brush at 200 patients. 17% of patients were informed about the usage of interdental brush and dental floss. 40% of patients were informed about the usage of dental floss. 38,6% of them were not informed about the usage of interdental brush neither about the usage of dental floss. And 4,4% of patients were informed about the use of interdental brush.

Figure 2 shows data regarding the motivation of patients for using dental floss and interdental brush and a number of patients who had control exam three months after.

Table 1 shows index levels of dental plaque among control and examine section at patients three months after using dental floss. Data confirmed statistically significant reduction of dental plaque at the section where dental floss was applied ( $p < 0,01$ ).

Table 2 shows the index levels of gingival inflammation among control and examine section at patients three months after using dental floss. Data also confirmed statistically significant reduction of gingival inflammation in the examine section three months after using dental floss ( $p < 0,01$ ).

Table 3 shows index levels of dental plaque among control and examine section at patients three months after using interdental brush. Data confirmed statistically significant reduction of dental plaque at the examine section where interdental brush was used ( $p < 0,01$ ).

	Control section* n = 20	Examine section** n = 20
X	1,20	0,50
SD	0,69	0,60
t		3,39
p		0,0016*

\* Section where dental floss isn't used

\*\* Section where dental floss is used

Table 3.

Index levels of dental plaque at patients after three months of using interdental brush

	Control section* n = 20	Examine section** n = 20
X	1,05	0,50
SD	0,60	0,60
t		2,87
p		0,006*

\* Section where dental floss isn't used

\*\* Section where dental floss is used

**Table 4.**

Index levels of gingival inflammation and bleeding at patients after three months of using interdental brush

**Table 4** shows index levels of gingival inflammation among control and examine section at patients three months after using interdental brush. Data also confirmed statistically significant reduction of gingival inflammation in the examine section three months after using interdental brush ( $p < 0,01$ ).

## Discussion

Our results show low level of knowledge related to the use of supplementary items, especially the use of inter-dental brush at patients with periodontal disease (**Figure 1**). This is a result of insufficient attention paid by dentists and periodontologists to this problem. The majority of dentists are not concerned about the problem related to the care of inter-dental spaces. But, besides the dentists, more important role for better information of patients about dental care belongs to dental hygienist [17,20].

Maintaining oral hygiene of inter-dental spaces depends on anatomy of gingiva, dens and their setting in the jaw. In accordance to the type of dental space, there were varieties of supplementary items for oral hygiene. Dental floss is indicated at type 1 of inter-dental space and dental implants. The effectiveness of its use do not show any positive results in eliminating dental plaque according to the type of dental floss, but from the technique of its use [6,8,9].

Inter-dental brushes are indicated for: type 2 and type 3 of inter-dental spaces, exposed divarication of teeth, a concave parts of teeth or its radix, distal area of molars, crowns, teeth with caries, orthodontic patients and patients with implants. Brushes are applied proximal, without any pressure moving it outside-inside direction. During our investigation, we registe-

red significant reduction of dental plaque level and gingival inflammation in the section of inter-dental brushes use and dental floss application in comparison to the counter sections (**Tables 1, 2, 3, 4**). This is a result of a mechanical elimination of dental plaque from spaces inaccessible for self-cleaning even with new designed toothbrushes. Similar results were obtained in research by Graves [8] and Craft [3], Cronin [5], Rosema [18] and Tarannum [21].

We succeeded to motivate modest number of patients to use inter-dental brush and dental floss. From total 90 patients instructed to use dental floss on the third control we examined only 25. From total 70 patients instructed to use inter-dental brush on the third control we examined only 20 patients. (**Figure 2**).

During the research of the preventive program in England which included 6700 children aging from 13-14 years, Axelsson and Lindhe did not get the desired effects [1]. The program consisted from presentation of the technique of tooth brushing and experimental work (practical presentation of tooth brushing in schools).

Results showed evident reduction of the level of dental plaque and gingival inflammation, but short period of observation (5-28 weeks) was not sufficient to motivate the children for maintaining oral hygiene. We suppose that the use of supplementary items for oral hygiene and single instruction for their implementation are insufficient for patients' motivation.

## Conclusion

On the basis of the analysis of the results obtained by our investigation, we can conclude that

in the section using inter-dental supplementary we noted significant decrease in the index values of the dental plaque and gingival inflammation. Thus, we consider that:

1. Positive effects which are evident when using inter-dental supplementary items for oral hygiene impose the necessity of their use at patients with periodontal disease in accordance to the indication.

2. Insufficient informing of patients about regular oral hygiene indicate that dentists need to stop reporting only particular and inadequate information like:

"you need to brush your teeth", without proposing complete explanation.

3. Process of motivation for maintaining oral hygiene, especially for using supplementary items for oral hygiene is permanent, and is necessary to start even in childhood. Therefore, we need continuous preventive programs which will be implemented in schools.

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