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Research Article

**A DESCRIPTIVE STUDY TO KNOW THE EFFECTS OF
ORTHODONTIC TREATMENT ON PERIODONTAL HEALTH****Dr Lubna Arshad Azam Raja, Dr. Shumaila Ishaq, Dr. Muntaha Tariq
MIHS Rawalpindi****Article Received: September 2019 Accepted: October 2019 Published: November 2019****Abstract:**

Objective: Oral hygiene importance is always strengthening to halt any additional periodontal disease. In oral hygiene absence, plaque collection in the components of the orthodontic device leads to the destruction of periodontal tissues. It is difficult to maintain oral hygiene due to the wide area of the coated teeth and the complicated structure of the orthodontic devices. This study was conducted to evaluate the effects of orthodontic treatment of periodontal health of young patients.

Methodology: This was an observational study done at In the Dental department of Shalimar Medical college Lahore from February 2019 to April 2019. There were 50 patients selected in this study. Simple random sampling method was used in this study. Periodontal examination was done after gradual period. To evaluate the periodontal status of indexed teeth CPITN (community periodontal index for treatment need) was done. Chi square test and SPSS version 16 were used to compare data and for analysis purpose.

Results: Out of 50 patients, there were 32 (64%) males and 18 (36%) females. Mean age of our patients was 25 years, ranging from 15 – 35 years. CPITN score increases at the end of treatment or during treatment. P value of '0' indicates a significant association between Intra-Ortho and Post Ortho treatment which revealed that there is progress of periodontal disease. The disruption of periodontal tissue has increased in patients from the onset of orthodontic treatment to the end of treatment. The results showed that patients who received orthodontic treatment showed minimal periodontal disease symptoms with best oral hygiene. There is no direct relationship between Pre-Ortho and Post-Ortho treatment.

Conclusion: There is progress of periodontal disease. The disruption of periodontal tissue has increased in patients from the onset of orthodontic treatment to the end of treatment. The results showed that patients who received orthodontic treatment showed minimal periodontal disease symptoms with best oral hygiene. There is no direct relationship between Pre-Ortho and Post-Ortho treatment.

Key words: orthodontic treatment, periodontal health, community periodontal index for treatment.

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INTRODUCTION:

In orthodontic patients, oral hygiene importance is always strengthening to halt any additional periodontal disease. In oral hygiene absence, plaque collection in the components of the orthodontic device leads to the destruction of periodontal tissues [1]. It is difficult to maintain oral hygiene due to the wide area of the coated teeth and the complicated structure of the orthodontic devices. During orthodontic treatment, oral hygiene Provision will help to promote good gum health reflected in the final outcome of orthodontic treatment. However, gum health information among orthodontic patients is not enough. Oral hygiene care is caused by neglect of the patients themselves or lack of knowledge. Patients do not receive adequate instruction [2, 3], which may be one of the main reasons for the patient's inappropriateness.

However, despite the appropriate instructions, many people do not follow the instructions. However, many do not have knowledge about care. It is important to compile instructions and motivate them to retain oral health. It is mostly necessary to evaluate orthodontic patients' knowledge about gingival health. The purpose of this study was to evaluate the patient's periodontal status (orthostatic orthodontic treatment at the beginning of treatment (pre-ortho), after few months of treatment (intra ortho)).

MATERIALS AND METHODS:

This study was carried out In the Dental department of Shalimar Medical College Lahore form February 2019 to April 2019. Fifty orthodontic patients were selected from the orthodontic department by simple random sampling method.

Inclusion criteria were to select patients with all the teeth separate from the third molars. Oral prophylaxis was performed at the beginning of all patients' orthodontic treatment and oral hygiene instructions were taken. Patients were examined after gradual period before beginning orthodontic treatment and using CPITN periodontal health was assessed around the index teeth using probes. To achieve this Goal, WHO has taken steps to train Periodontology department officers and sent to the orthodontics department for collection of data. Using CPITN, data was collected as shown in Annex 1. All data which was recorded analyzed statistically using the data analyzer of the SPSS version 16 and several differences were made using the chi-square test.

RESULTS:

Out of 50 patients, there were 32 (64%) males and 18 (36%) females. Mean age of our patients was 25 years, ranging from 15 – 35 years as shown in Figure 1.

Table 1: Social and demographic details of the patients. N=50.

	Frequency	Percentage
Age (years)		
15-20	09	18
20-25	16	32
25-30	18	36
30-35	07	14
Gender		
Male	32	64
Female	18	36

Educational status		
Illiterate	2	4
Primary	4	8
Secondary	5	10
Higher secondary	10	20
Graduation	18	36
Post-graduation	11	22
Residence		
Rural areas	29	58
Urban areas	21	42
Smokers	6	12

Comparison of Intra-Ortho and Pre-Ortho treatment (Table 3)

Table 3 shows the Intra-Ortho and Pre-Ortho patient's comparison of patients. A correlation between p value, orthodontic treatment and periodontal disease progression is given.

Table 03: Pre-Ortho CPITN and Intra- Ortho CPITN cross tabulation count

intra-ortho →	CPTN Score				Total no of patients	P value
	1	2	3	4		
pre-ortho ↓						
1	04	05	0	4	13	
2	07	02	01	11	21	
3	01	08	05	02	16	
	15	15	6	17		
Total no of patients	50				50	P= 0.02

Comparison of Intra-Ortho and Post-Ortho treatment (Table 4)

Patient data Comparison after post-orthodontic and intra-orthodontic treatment is given in Table 4, indicating that the CPITN score increases at the end of treatment or during treatment. P value of .02 indicates a significant association between the 04.

Table 04: Intra-Ortho CPITN and Post- Ortho CPITN cross tabulation count

Post-ortho →	CPTN Score				Total no of patients	P value
	1	2	3	4		
intra-ortho ↓						
1	02	08	0	6	16	
2	07	02	01	10	20	
3	05	02	05	02	14	
	14	12	6	18		
Total no of patients	50				50	P= 0.01

Comparison of preoperative and post-Ortho treatment (Table 5)

The disruption of periodontal tissue has increased in patients from the onset of orthodontic treatment to the end of treatment. This was confirmed by more patients at the end of orthodontics who achieved a higher CPITN score than those at baseline.

Post-ortho →	CPTN Score				Total no of patients	P value
pre-ortho ↓	1	2	3	4		
1	02	05	01	6	14	
2	05	02	01	08	16	
3	05	07	05	03	20	
	12	14	7	17		
Total no of patients	50				50	P= 0.12

DISCUSSION:ANNEXURE 1
CPI TN SCORE

- | |
|--|
| 0 healthy periodontium |
| 1 = bleeding observed, directly or by using mirror, after sensing |
| 2 = calculus felt during probing, but entire black area is visible |
| 3 = pocket 4-5mm (gingival margin is located on black area of probe) |
| 4 = pocket greater than 6mm (black area of probe not visible) |

Periodontal status in this study was evaluated after and before fixed orthodontic devices placement in selected patients for orthodontic treatment. During orthodontic treatment, a study was conducted to clinically evaluate the periodontium status around bands placed on molar not only around devices. The hypothesis is that in the periodontal status, there is a change receiving fixed orthodontic treatment. The results of the study supported the hypothesis and showed an obvious change in the patient's periodontal status. The patients data shows that fixed orthodontic treatment give $p = 0.00$. There was a significant change in the CPITN score (detection, calculation and bleeding in the depth of the bag) after placement of stationary devices.

This is consistent with the findings of Naranjo et al. Bracket placement has reported that biofilm accumulation in cross-linked regions affects the ecological environment. There was a significant rise in gingival index and plaque in the experimental study group, resulting in more inflammation and bleeding that changed the periodontal status [4]. There was also a huge variation in the Intra-Ortho and Pre-Ortho group's scores. Control group ($p < 0.05$). For this reason, it has been found that the placement of stationary devices leads to an increase in the TUF score. A change in the TUF score was observed in both anterior and posterior segments ($p < 0.05$). For this reason, not only parentheses, but also bands affecting periodontal health have been found. Similar observations have been reported by others [5,6,7,8].

For this reason, it may be good to subtract the fixed brackets from the center of the patient to eliminate plaque accumulation before and after half of a possible violence factor between orthopedic patients. Most young patients demand orthodontic treatment and often suffer from plaque associated gingivitis. The indication of periodontal disease in adults is an obstacle in the derivation of orthodontic treatment. Almost all fixed orthodontic patients develop gum disease during treatment [9]. Gingival enlargement and inflammation is usually temporary and heals after weeks of rest. Temporarily constricted orthodontic appliances cause less gingivitis than band devices [10]. Of course, it has been shown that young people have worse gums than adults during orthodontic treatment. The main purpose in front of any orthodontic intervention is to maintain the periodontal state. Good gingival health position during orthodontic treatment will provide the right treatment result. Motivating and making them to practice oral hygiene measures in young age groups will certainly enhance the levels of oral hygiene standards [12,13].

CONCLUSION:

Orthodontic treatment giving adequate instructions for the protection of gum health plays a vital role in this respect. Motivating and having oral hygiene practices in youth groups will definitely improve oral hygiene standards. Many patients do know exactly how to provide high oral hygiene standards that can lead to excellent results of orthodontic treatment.

Proper brushing is ideal for good gum health when long-lasting brushing deforms the gum tissue. Weakening diseases such as wear are basically caused by inadequate brushing. As for the conscience of gum health, relatively little is known, many of whom are unaware.

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