

COMPARISON OF ORAL HYGIENE INSTRUCTIONS GIVEN BY ORTHODONTISTS AND GENERAL DENTAL PRACTITIONERS TO PATIENTS SEEKING ORTHODONTIC TREATMENT

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ABSTRACT

Oral Hygiene Instructions play a vital role in an orthodontic treatment to be successful. The purpose of this short term randomized study was to evaluate how much the orthodontists and general dental practitioners were aware about giving proper oral hygiene instructions to the patients undergoing orthodontic treatment and the level of patients' compliance. The results showed that the orthodontists and general dental practitioners considering it an obligation, gave proper oral hygiene instructions to their orthodontic patients to which the patients compliance was not good.

Key words: *Orthodontic manual tooth brush, Periodontal health, Fixed appliance.*

INTRODUCTION

Man has always been interested in his appearance and in maintaining a clean, pleasant-appearing mouth and smile. A finger wrapped with cloth was an early method of cleaning teeth. In ancient India teeth were cleaned as part of the daily hygienic rituals. The Greeks would use the finger with or without the cloth whereas the Romans would use toothpicks from the mastic tree.¹This shows that even in the ancient times the maintenance of oral hygiene was considered to be very important.

In the modern world it is almost obligatory for a dentist to give proper oral hygiene instructions to a patient specially those who are seeking orthodontic treatment but it is also equally important that a patient shows compliance to his dentist by maintaining a proper oral hygiene during the fixed appliance therapy, as Martin H. Fischer said "If a patient cannot clean his teeth, no dentist can clean them for him." After the insertion of fixed labial appliances, detrimental effects can be observed in the short and long term.²

Orthodontic treatment with fixed appliances alters the oral environment, increases plaque amount,³ changes the composition of the flora⁴ and complicates cleaning for the patient.⁵ Gingivitis and enamel decalcification^{6,7} around fixed appliances are frequent side effects when the preventive programs have not been implemented. Thus the elimination of plaque through proper oral hygiene is the main target to achieve for overcoming these problems. Mouth rinses may help to reduce plaque formation^{8,9} and mechanical cleaning of tooth surfaces can be accomplished in many ways.¹⁰⁻¹² Regular tooth brushing is advised routinely as means of preventing gingival and dental disease during orthodontic appliance therapy.¹³

METHODOLOGY

Two hundred fifty questionnaires were distributed to the dentists practicing in the region of Islamabad and Rawalpindi and dental institutes (Table 1).

Another questionnaire was prepared specifically for those patients who were seeking orthodontic treat-

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TABLE 1: QUESTIONNAIRE FOR DENTISTS

<p>1. Are you a</p> <ul style="list-style-type: none"> • General Dental Practitioner • Orthodontist (Minor qualification, Major qualification or Supervisor) • GDP with Ortho Course (C- Ortho) • Trainee/Resident • Demonstrator • House officer • Others <p>2. Do you practice orthodontics? Yes No</p> <p>3. What oral hygiene instructions do you normally give to your patients after starting fixed appliance therapy?</p> <ul style="list-style-type: none"> • Ordinary manual tooth brush • Orthodontic manual tooth brush • Electric tooth brush • Dental flossing • Mouthwashes (chemical) • Rinses (salt water) • Others <p>4. How many times a day you recommend cleaning of teeth?</p> <ul style="list-style-type: none"> • Once daily • Twice daily • Thrice daily • After every meal • Others <p>When?</p> <ul style="list-style-type: none"> • Morning • Evening • Night

TABLE 2: QUESTIONNAIRE FOR PATIENTS

<p>1. How do you clean your teeth?</p> <ul style="list-style-type: none"> • Ordinary manual tooth brush • Orthodontic manual tooth brush • Electric tooth brush • Dental flossing • Mouthwashes (chemical) • Rinses (salt water) • Others <p>2. How many times a day you clean your teeth and when?</p> <ul style="list-style-type: none"> • Once daily • Twice daily • Thrice daily • After every meal • Others <p>When?</p> <ul style="list-style-type: none"> • Morning • Evening • Night
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ment from the orthodontic department at Margalla College of Dentistry. One hundred such questionnaires were distributed randomly to the orthodontic patients being treated (Table 2).

RESULTS

The response rate from the dentists was 62% whereas the response rate from the orthodontic patients was 60% and both of the questionnaires were collected by hand. The results were subjected to a descriptive statistical analysis with the help of SPSS 16.

The results showed that there were 25% General Dental Practitioners (Group A) and 5.8% Orthodontists (Group B) who were practicing orthodontics in the region of Islamabad and Rawalpindi. 43.6% of the

Group A dentists advised the use of ordinary manual tooth brush, 84.6% recommended the use of orthodontic manual tooth brush, 10.3% prescribed the use of electric tooth brush, 33.3% advised the use of dental flossing, 82.1% recommended the use of Chlorhexidine mouthwash, 48.7% prescribed the use of salt water rinses and 12.8% advised different methods which included use of interdental brush (Figure 1). 2.6% of the Group A dentists recommended cleaning of the teeth once daily, 28.9% advised cleaning twice daily, 15.8% recommended cleaning thrice daily, 60.5% advised cleaning of teeth after every meal and 2.6% advised various other methods (Figure 2). 100% of the Group A dentists recommended cleaning of the teeth in the morning, 78.4% advised cleaning of the teeth in the evening but 100% recommended cleaning of the teeth at night.

It was shown that 33.3% of the Group B dentists advised the use of ordinary manual tooth brush, 88.9% recommended the use of orthodontic manual tooth brush, 44.4% advised the use of electric tooth brush, 44.4% recommended dental flossing, 77.8% advised the use of Chlorhexidine mouthwashes, 66.7% recommended the use of salt water rinses while 11.1% advised other methods including interdental brush. 0% Group B dentists recommended cleaning of the teeth once daily, 33.3% advised cleaning twice daily, 11.1% recommended cleaning thrice daily and 55.6% advised cleaning of the teeth after every meal. 100% of the

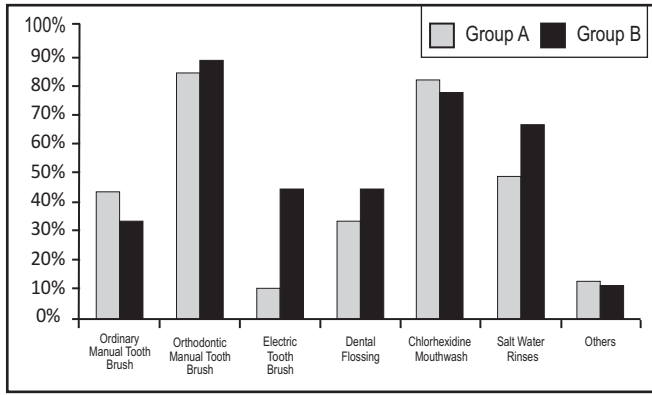


Fig 1: Comparison of Oral Hygiene Instructions by General Dental Practitioners (Group A) and Orthodontists (Group B)

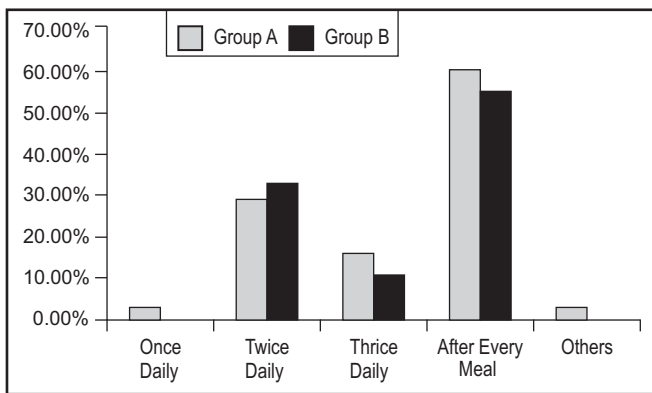


Fig 2: Comparison of Brushing Frequency advised by General Dental Practitioners (Group A) and Orthodontists (Group B)

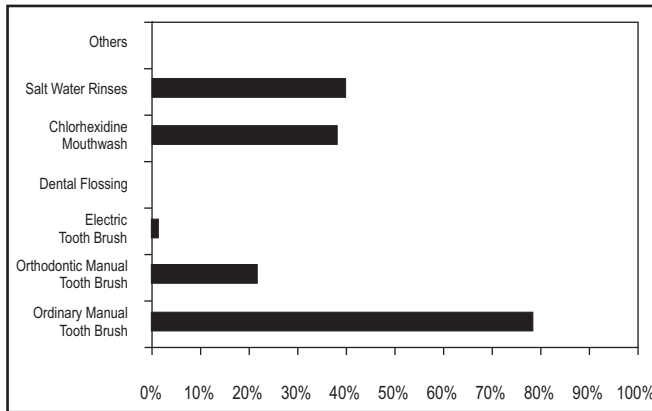


Fig 3: Method of Oral Hygiene followed by Patients given by Orthodontists (Group B)

Group B dentists recommended cleaning of the teeth in the morning, 66.7% advised cleaning of the teeth in the evening but 100% recommended cleaning at night.

78.3% of the patients seeking orthodontic treatment from the orthodontic department at Margalla College of Dentistry chose ordinary manual tooth brush for the maintenance of oral hygiene, 21.7% were

using orthodontic manual tooth brush, 1.7% had selected electric tooth brush. Nobody was using dental floss, 38.3% were using Chlorhexidine mouthwashes and 40% had selected salt water rinses (Figure 3). 8.3% of the patients were cleaning their teeth once daily, 53.3% teeth twice daily, 13.3% were brushing their teeth thrice daily and 26.7% were cleaning their teeth after every meal. 96.7% of the patients were cleaning their teeth in the morning, 40% in the evening and 93.3% at night.

DISCUSSION

Group A (84.6%) and Group B (88.9%) dentists recommended the use of orthodontic manual tooth brush as this brush is more effective in orthodontic patients due to its increased accessibility to the interdental areas. Group A (43.6%) and Group B (33.3%) dentists recommended the use of ordinary manual tooth brush as compared to the orthodontic manual tooth brush but the importance of an ordinary manual tooth brush cannot be ignored as it is the oldest and most common method to clean the teeth, moreover it is cheaper. Group A (10.3%) dentists recommended the use of electric tooth brush keeping in mind its high cost but on the other hand 44% of Group B dentists recommended the use of electric tooth brush as compared to the Group A dentists. A number of studies have found out that the use of electric tooth brush brings a significant improvement in oral hygiene.^{14,15}

Chlorhexidine mouthwash as an adjunct to tooth brushing has been found effective in the control of gingival inflammation¹⁶ and Chlorhexidine is the most potent documented antimicrobial agent against *Streptococcus mutans* and dental caries¹⁷, although prolonged use may cause staining, hence Group A (82.1%) and Group B (77.8%) dentists recommended the use of Chlorhexidine mouthwash. Group A (33%) and Group B (44.4%) dentists also recommended the use of dental floss as floss easily engages into the interdental areas and removes any food debris which may not be accessible with a tooth brush. Lukewarm salt water rinses are very effective in maintaining good periodontal health hence; Group B (66.7%) dentists recommended the use of salt water rinses as compared to Group A (48.7%) dentists. Cleaning of teeth after every meal prevents food impaction, plaque formation and reduces the chances of gingivitis hence, Group A (60.5%) and Group B (55.6%) dentists recommended cleaning after every meal.

The Group B dentists in the orthodontic department at Margalla College of Dentistry had already

filled the dentist related questionnaire recommending the use of orthodontic manual tooth brush, Chlorhexidine mouthwash, salt water rinses and cleaning of teeth after every meal but only 21.7% of the patients were using orthodontic manual tooth brush whereas majority of patients were using ordinary manual tooth brush showing non-compliance to their orthodontist. 38.3% of the patients claimed the use of Chlorhexidine mouthwash whereas 40% were using salt water rinses. Another sign of non-compliance was evident when 26.7% of the orthodontic patients claimed that they were cleaning their teeth after every meal whereas 53.3% of orthodontic patients claimed that they were cleaning their teeth twice daily.

Dental floss is one of the effective conventional aids for maintaining oral hygiene but in orthodontic patients with fixed appliances dental flossing becomes difficult. In a similar Syrian study majority of orthodontists recommended the use of conventional methods for oral hygiene maintenance as compared to electronic aids of teeth cleaning and dental flossing.¹⁸

Results showed that majority of orthodontic patients who were receiving treatment in the orthodontic department at Margalla College of Dentistry were using ordinary manual tooth brush (78.3%) and cleaning their teeth twice daily (53.3%) although they were advised by the orthodontist to use orthodontic manual tooth brush and clean their teeth after every meal. The non-compliance could have been due to the reason that the patients were used to certain oral hygiene routine and they found it difficult to follow the new set of oral hygiene instructions. Another reason could have been that the patients did not realize how important it was for them to follow the oral hygiene instructions properly. It is essential for the orthodontists to reemphasize on oral hygiene instructions on every visit.

CONCLUSION

This study shows that the orthodontists and the general dental practitioners practicing orthodontics in the region of Islamabad and Rawalpindi gave a similar set of oral hygiene instructions to the patients undergoing orthodontic treatment considering it mandatory but the patients did not comply and failed to follow the oral hygiene instructions which were essential for successful treatment outcome. However, it is important that the orthodontists or general dental practitioners practicing orthodontics must be able to communicate the importance of oral hygiene and motivate patients to maintain a satisfactory standard of oral hygiene during the orthodontic treatment.

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