Plaque removal efficacy of a battery-operated power toothbrush compared to manual toothbrush in patients with fixed orthodontic appliances

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INTRODUCTION

Patients undergoing orthodontic treatment with fixed appliances are at risk of developing carious lesions and gingival inflammation because of the challenges of oral hygiene. This study will compare the efficiency of a manual toothbrush (Classic Clean by Crest) versus a low-cost battery operated electric toothbrush (SpinBrush Classic by Crest) on plaque removal and patient compliance for a set of young orthodontic patients at St. Barnabas Hospital. The hypothesis is that orthodontic patients will show decreased plaque with the battery operated electric toothbrush. This study is designed to be a randomized, single blind parallel group trial. Initial case design will include two groups. Group 1 will be provided the manual toothbrush followed by the electric toothbrush. Group 2 will be provided a battery operated electric toothbrush followed by the manual toothbrush. Instructions will be given to orthodontic patients to brush for 2 minutes, twice daily for 4 weeks. Accordingly, groups will switch to the other toothbrush for an additional 4 weeks. Plaque scores will be taken before and after each period. Patients will be asked to complete a survey at the end of the study regarding toothbrush preference and compliance.

RESULTS

The plaque index was analyzed for each parameter at baseline and after each experimental period. No significant differences were found among the patients for baseline clinical indexes. Plaque scores ranged primarily in the mild to moderate category. Gingival health were primarily moderate inflammation at the start of the study, however, this is based on clinical observation rather than a gingival index. There were no significant differences among the manual and battery operated toothbrush. The results showed minimum changes between the two phases of different toothbrushes. Differences were not noted between the initial visit and at the end of the study. This indicates that no brush was less efficient than the others for orthodontic patients. There was no difference in oral hygiene between boys and girls for any of the parameters.

CONCLUSIONS

1. There was no difference in efficacy among the Crest Classic Clean manual toothbrush versus Crest Spinbrush Classic battery operated toothbrush in children undergoing fixed orthodontic appliance therapy concerning plaque scores.

2. Most patients used some form of manual toothbrush prior to the study, however, many indicated that they would consider switching to a battery operated electric toothbrush in the future.

3. Patients were more educated on the importance of oral health and hygiene care when providers took the time to discuss this with their patients. Most indicated that they better understand the importance of oral hygiene from this study.

BIBLIOGRAPHY