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Efficacy of tooth brushes of different bristles design in plaque removal

Background

Plaque is a community of microorganisms that appear as a thin, soft, translucent and tenaciously adherent layer on the un-shedding surfaces of oral cavity. This community harbors usually bacteria that are mostly involved in the disease process of dental or periodontal tissues or even both in the oral cavity. Plaque control includes its removal and prevention of its accumulation. Plaque control via tooth brushes is hence required to be removed to prevent the disease process and to maintain the oral hygiene. The main objective is to evaluate the efficacy of four different deigns of manual tooth brushes available in the market, with respect to plaque removal efficacy. The study was an in-vivo crossover type. Clinical trials were carried out at outpatient clinic of Operative Dentistry, Nishtar Institute of Dentistry, Multan. It was an interventional kind of study that was short term and examiner blind. 30 volunteers from the same age group (19 to 25 years) participated. Four brushes were selected to be checked and compared for efficacy and were given codes that were revealed only at the end of the study. For the quantitative assessment of plaque, Gilmore-Glickman Modification of Hein Plaque Index was chosen. Flat-bristle designed toothbrush the mean plaque score has come to 48.70 (post-brushing) from a prebrushing mean score of 113.27. It showed a total reduction of 64.57. For Concave-bristle designed toothbrush, the value changed from 112.67 to 47.63 with a reduction of 65.04. Zigzag bristle designed toothbrush showed a Postbrushing mean plaque score of 54.07 compared to 117.57 (mean pre-brushing score) giving rise to a reduction of 63.50. Whereas crisscross bristle designed tooth brush showed a post-brushing plaque score of 75.00, compared to 109.46 (pre-brushing mean plaque score) with a total reduction of the value 34.46. This suggests that all the four toothbrushes have shown plaque reduction, somehow to a greater or lesser extent. The reduction was

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also found to be statistically significant as the p-values were less than 0.05. Based on the results obtained from the study it comes forward that though newer and newer varieties of toothbrush bristle designs are coming in the market, no one is exceptional in efficacy for removing plaque. Though complexity in the newer products do increases but the plaque removing efficacy does not increases proportionately.

Acknowledgments

Conflict of interest

The author declares that there is no conflict of interest.