Review Article

Oral Hygiene Products

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ABSTRACT

The aim is to gather and gain knowledge about various oral hygiene products. The objective of this study is to compile the various advances with regard to oral hygiene products. Oral hygiene plays an inevitable role in the overall well being of a person. Oral hygiene aids play an indispensable role in the maintenance of oral hygiene. Oral health approaches should be tailored to lifestyles and abilities of children, adults and the elderly in order to enable them to make decisions to improve personal oral hygiene and oral health. The Reason for the project is to understand the various oral hygiene techniques and the products used so as to improve the quality of life.

Keywords: Oral hygiene, Products, Oral health, Floss.

INTRODUCTION

Dental conditions that aren't treated properly and poor oral hygiene have a great impact on the quality of life of children which may lead to overall downfall of health.[1]

The longer a person puts off his or her treatment the worsen the condition of the disease gets, and also the costs of the treatment are elevated as a consequence.[2]

Deteriorating dental health of many children and adults leads to pain, discomfort, insomnia and extended holidays which is of a major concern.[3]

Maintaining the oral cleanliness by microbial plaque removal and prevention from accumulation on the teeth for the preservation of oral health is defined as personal oral hygiene.

Plaque is the primary reason for gingivitis and periodontal diseases,[1-2] so these diseases can be prevented by plaque control.

Apart from plaque removal which plays a role in the prevention of dental caries, fluoride from fluoridated denitrifies prevents dental caries to a major extent.

The first traces of oral hygiene products dates back in the Chinese literature to about 1600 BC in the form of chewsticks.

The importance of removal of deposits from the tooth surfaces was commented by Hippocrates (460-377 BC).[4]

At about 16th century the first toothbrush with bristles was introduced. The public awareness about the importance of personal hygiene is increasing, with the number of caries experience decreasing, the number of people retaining their teeth is also increasing and new significance on aesthetically attractive dentitions.[5]

Oral health is a critical but overlooked component of overall health and well-being among children and adults. There is increasing evidence of associations between oral infections and other diseases, such as pre-term, low birth weight babies, heart disease, lung disease, diabetes and stroke among adults (National Institute of Dental and Craniofacial Research, 2000).[4]

The current oral hygiene measures include-toothbrushes, floss, chewing gums, mouth rinses and toothpastes.[5,6]

This review aims to compile details about various oral hygiene products.

Tooth Brushing

It has been quoted by the Council of Dental Therapeutics, "In fact, the data from some studies emphasize the ability of persons to maintain good oral hygiene through effective use of a conventional toothbrush if they possess reasonable dexterity and have been trained adequately in the proper use of the brush".

The toothbrush's design, individual brushing skill, the frequency and duration of brushing determine the control of dental plaque.[7]

At the European Workshop on mechanical plaque control, it was accepted that the following should be the attributes of an ideal manual toothbrush:[8]

1. The size of the handle should be appropriate to use, with regard to age and dexterity.
2. Head size should be appropriate to the size of patient's mouth.
3. The end-rounded nylon or polyester filaments must not have a diameter more than 0.009 inches.
4. Use of soft bristle configuration, as defined by the acceptable International Industry Standards (ISO)

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5. Bristle patterns must enhance plaque removal in the approximate spaces and along the gum line.

Recent modifications include nylon multi-tufted round-ended bristles for improved efficacy, small-sized head for better access, designs to favor inter proximal access and longer handles to enable a firm grip.[9]

Sharma have reported that plaque removal from hard-to reach areas can be achieved by criss-cross bristles angled in opposing directions.

It was concluded by the researchers that greater plaque removal outcomes can be achieved by the advances in toothbrush design.[10]

Although brush stroke movements vary (for example, roll, circular, scrub) and should concentrate on the cervical and inter proximal areas where plaque is most detrimental, the individual's dexterity and thoroughness are more critical than technique or design in determining efficacy of plaque removal.[11]

Recent well-controlled studies report the new electric toothbrushes to be superior in plaque removal to manual toothbrushes but significant improvements in gingival health are yet to be shown.[12,13]

Tooth Paste

Mild abrasives and detergent components promote plaque removal, although the abrasivity can damage exposed root surfaces.[14]

Insignificant reductions in calculus formation have been reported in clinical studies using formulations containing 0.5 per cent zinc citrate alone, but in combination with the non-ionic chlorinated bis-phenol Triclosan T, M zinc citrate acted synergistically to produce significant reductions.[15]

Antibacterial properties of saliva are enhanced by adding enzymes such as dextranase and lactoperoxidase (for example, BioteneTM).

Herbal extracts such as aloe vera and those containing sanguinarine which are detergent-free dentifrices have shown a lack of therapeutic efficiency.[16]

Well recognized cariostatic benefits are achieved by fluoridated dentifrices (usually 1,000-1,500ppm fluoride as sodium fluoride or sodium monofluorophosphate).

The risk of fluorosis in young children who may ingest dentifrices are reduced by recommending small amounts of dentifrices with lower fluoride concentrations (400-500ppm).[17]

Interest in natural-based toothpastes has increased recently.

For example, the composition of Paradontax (GlaxoSmithKline, Middlesex, United Kingdom) is sodium bicarbonate, sodium fluoride (1,400 ppm) and herbal ingredients which include camomile, rhatany, echinacea, sage, myrrh, and peppermint oil.

Each individual component has a variety of medicinal properties.[18]

Floss

Most periodontal diseases originate inter proximally, including gingivitis, which is most frequent and severe at these sites.[19]

Dental floss is the most effective means for removing interdental plaque and reducing interdental gingival inflammation.[20]

Unfortunately, most people do not floss routinely.

With flossing aids inter proximal plaque can be removed and decrease inflammation and bleeding as effectively as hand-held floss.

This method is of particular benefit for children or non-dextrous adults.[21]

In a fluoridated community, daily flossing by hygienists of the teeth of preschool children reduced inter-proximal caries by 30 per cent.[22]

Chewing Gums

Clearance of dietary substance and microorganisms is accelerated by the use of sugar-free chewing gum as it mechanically stimulates the saliva.

It also promotes buffers to neutralize plaque acids and provide antibacterial substances.[23]

A reduction in the fall in PH levels of plaque and fast recovery is seen 20 minutes after chewing a sugar free gum.

A reduction in the time for demineralization and an enhancement in the potential for demineralization of lesions which are in the early carious stage is brought about by the action of these gums.[24]

Stimulation of the rate of flow of saliva is increased three to tenfold more than the resting level.[25]

An enhancement saliva function is seen in those with low flow rates. It helps provide relief from dry mouth in elderly people suffering from xerostomia.[26]

Mouth Washes

Chlorhexidine has wide range of antimicrobial activity.

It's effectiveness is seen against both Gram-negative and Gram-positive bacteria and also anaerobes and aerobes, fungi, yeast and lipid enveloped viruses[27-28].

Mouthwashes based on essential oils contain menthol, eucalyptus and thymol in an alcoholic solvent.

They are a wide variety of antimicrobial agents that reduce multiplication of bacteria, aggregation and pathogenicity.[29]

Cetylpyridinium chloride has a moderate plaque inhibitory activity.[30,31]

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Due to it's cationic nature it binds to the cell membrane of the bacteria destroying the cell membrane and leads to the leakage of intracellular components.

Triclosan has been used in many toothpastes and mouthwashes due to it's anti-inflammatory property.[32]

Various studies have shown that Triclosan reduces the inflammatory reaction on the gingiva and reduces the severity and healing period of recurrent apthous ulcers.[33,34]

CONCLUSION

All these products aim at preventing caries and most of the periodontal diseases.

They promote healthy oral tissues which in turn is the evident marker of the oral health.

These products eventually ensure that oral health is maintained without any hinderance no matter what the age or the present condition of the user is.

We've have evolved from chewsticks to electronic toothbrushes and there has been a marked evolution with regard to all the other oral hygiene products.

REFERENCES

1. Petersen PE. The World Oral Health Report 2003. Continuous improvement of oral health in the 21st century- the approach of the WHO Global Oral Health Programme [monograph on the internet]. Geneva, Switzerland: WHO; 2003 [cited 2013 Feb 15].
2. Retna KN. Assessment of dental treatment required and analysis of cost in the management of dental caries among semiurban primary school children of Kerala. J Indian Soc Pedod Prev Dent. 18(1), 2000, 29-37.
3. Kwan SYL, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. Bulletin of the World Health Organization. 83(9), 2005, 677-85.
4. Carranza F, Shklar G. Ancient India and China. In: History of Periodontology. London: Quintessence, 2003, 9-13.
5. Oral hygiene measures and promotion: Review and considerations.Audrey Choo,* David M Delac,* Louise Brearley Messer*.
6. Targeting poor health: Improving oral health for the poor and the underserved. Abhinav Singh, Bharathi Purohit.
7. Frandsen A. Mechanical oral hygiene practices. In: Löe H, Kleinman DV, editors. Dental Plaque Control Measures and Oral Hygiene Practices. Oxford, Washington, DC: IRL Press; 1986, 93-116.
8. Egelberg J, Claey N. In: Proceedings of the European Workshop on Mechanical Plaque Control. Quintessence Books; 1998, 169-72.
9. Saxer UP, Yankell SL. Impact of improved toothbrushes on dental diseases. I and II. Quintessence Int, 28, 1997, 513-522,573-592.
10. Sharma NC, Qaqish J, Walters PA, Grender J, Biesbrock AR. A clinical evaluation of the plaque removal e cacy of ve manual toothbrushes. J Clin Dent, 21, 2010, 8-12.
11. Mandel ID. The plaque fighters: choosing a weapon. J Am Dent Assoc, 124, 1993, 71-74.
12. Saxer UP, Yankell SL. Impact of improved toothbrushes on dental diseases. I and II. Quintessence Int, 28, 1997, 513-522, 573-592.
13. Walmsley AD. The electric toothbrush: a review. Br Dent J, 182, 1997, 209-218.
14. Forward GC. Role of toothpastes in the cleaning of teeth. Int Dent J, 41, 1991, 164-170.
15. Davies RM, Ellwood RP, Volpe AR, et al. Supragingival calculus and periodontal disease. Periodontol, 15, 2000, 1997, 74-83.
16. Jensen ME, Kohout F. The effect of a fluoridated dentifrice on root and coronal caries in an older adult population. J Am Dent Assoc, 117, 1988, 829-832.
17. Blake-Haskins JC, Gaffar A, Volpe AR. The effect of a bicarbonate/fluoride dentifrice on human plaque pH. J Clin Dent, 8, 1997, 173-177.
18. Claudio Mendes PannutiI; Joyce Pereira de MattosII; Paula Nini RanoyaII; Alberto Martins de JesusII; Roberto Fraga Moreira LotufoI; Giuseppe Alexandre RomitoI Clinical effect of a herbal dentifrice on the control of plaque and gingivitis. A double-blind study. Pesqui Odontol Bras, 17(4), 2003, 314-8.
19. de Rysky S. The effects of officinal herbs on inflammation of the gingival margin: a clinical trial with a newly formulated toothpaste. J Clin Dent, 1, 1988, 22-4.
20. Schauenberg P, Paris F. Guide to medicinal plants. 3rd ed. London: Lutterworth Press; 1977.
21. Mullaly BH, James JA, Coulter WA, Linden GJ. The efficacy of a herbal based toothpaste on the control of plaque and gingivitis. J Clin Periodontol, 22, 1995, 685-9.
22. Loe M, Theilade E, Jensen SB. Experimental gingivitis in man. J Periodontol, 36, 1965, 177-187.
23. Carter-Hanson C, Gadbury-Amycot C, Killoy W. Comparison of the plaque removal efficacy of a new flossing aid (Quik Floss) to finger flossing. J Clin Periodontol, 23, 1996, 873-878.
24. Wright GZ, Banting DW, Feasby WH. The Dorchester dental flossing study: final report. Clin Prev Dent, 1, 1979, 23-29.
25. Manning RH, Edgar WM. pH changes in plaque after eating snacks and meals, and their modification by chewing sugared or sugar-free gum. Br Dent J, 174, 1993, 241-244.
26. Fure S, Lingstrom P, Birkhed D. Effect of three months' frequent use of sugar-free chewing gum with and without urea on calculus formation. J Dent Res, 77, 1998, 1630-1637.
27. Harbison MA, Hammer SM; Inactivation of human immunodeficiency virus by Betadine products and chlorhexidine. J Acquir Immune Defic Syndr, 2, 1989, 16-20.
28. Suci PA, Tyler BJ; Action of chlorhexidine digluconate against yeast and filamentous forms in an early-stage

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Candida albicans biofilm. Antimicrob Agents Chemother, 46, 2002, 3522-31.

29. Fine DH, Furgang D, Sinatra K, Charles C, McGuire A, Kumar LD; In vivo antimicrobial effectiveness of an essential oil-containing mouth rinse 12 h after a single use and 14 days' use. J Clin Periodontol, 32, 2005, 335-40.

30. Lobene RR, Lobene S, Soparker PM; The effect of cetylpyridinium chloride mouthrinse on plaque and gingivitis. J Dent Res., 56, 1977, 595.

31. Ciancio SG; Chemotherapeutic agents and periodontal therapy. Their impact on clinical practice. J Periodontol, 57, 1986, 108-11.

32. Kjaerheim V, Skaare A, Barkvoll P, Rölla G; Antiplaque-, antibacterial- and anti-inflammatory properties of triclosan mouthrinses in combination with zinc citrate or polyvinylmethylether maleic acid (PVA-MA) copolymer. Europ J Oral Sci., 104, 1996, 529-34.

33. Waaler SM, Rölla G, Skjörland KK, Ögaard B; Effects of oral rinsing with triclosan and sodium lauryl sulfate on dental plaque formation: a pilot study. Scand J Dent Res., 101, 1994, 192-5.

34. Skaare AB, Herlofson BB, Barkvoll P; Mouthrinses containing triclosan reduce the incidence of recurrent aphthous ulcers (RAU). J Clin Periodontol; 23, 1996, 778-81.

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