
The Importance Of Oral Health

Discussion

Oral health is an essential to overall well-being and relates to the quality of life. Childhood dental caries significantly contributes to the burden of pain and is associated with a marked decrease in the quality of life and general health. Keyes and Jordan stated that dental caries involves triad of indispensable factors: bacteria, carbohydrates and susceptible teeth. Oral cavity is widely colonised by a wide range of microbes. It contains gram-positive, gram negative bacteria, yeast and fungi making it a complex habitat in the body. According to Loeshe and van Houte) in humans, MS exhibit strong positive co-relation with caries development. Mutans streptococci are initiators of the carious lesion especially in the enamel (initiation), whereas lactobacillus are involved in progression of caries.

Streptococcus mutans is non motile, non-spore forming, coccoid gram positive facultative anaerobic, part of normal flora of mouth which is an alpha haemolytic streptococci. It can thrive in temperature 18-40 degree Celsius and pH below 5.5. With the rise in incidence of disease, anti-microbial resistant pathogenic bacteria, opportunistic infections in immunocompromised people, and also economic considerations, there is a major interest in the development of different prevention and treatment options for oral illnesses as well. (1) Mouthwash is an easy, local and relatively inexpensive treatment option. We tried to incorporate preparation of mouthwash in the study to make it more effective and useful.

Raja Nivetha reviewed on the effects of natural products on oral health and concluded that rich history of traditionally accessible herbal remedies would help reduce oral as well as systemic problems. Similarly Yuvraja Marudhappan systematically reviewed antimicrobial effect of Indian medicine in dental caries and listed neem, miswak, tea, clove oil, pudina, honey, coconut water, turmeric, ginger, black pepper etc. Hence the study was carried out to compare the effectiveness of natural non synthetic namely honey, green tea and turmeric against SM, which indirectly would reduce the load of dental caries in children. The design of the present study is similar to that described by Abdelmegid et al, and also has been used in other investigations by Waghmare et al, Fajriani et al, and Anil Kumar Goyal et al. The study sample was taken 25 (n=25) in each to make it statistically significant.

A study group inclusion was made 7 to 10 so that we would incorporate primary as well as deciduous dentition. The children would be co-operative and the procedural details would also be easily explained to them. Children under active form of orthodontic treatment and periodontal

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treatment were not included as those could modify normal microbial habitats of the oral cavity. Similarly, children under antibiotic therapy were also not included, which could also potentially alter the micro flora of the oral cavity. The honey and green tea solutions were made as prepared by Abdelmegid. to make 100% wt/vol solutions. 10 gm of solute was added to 100 ml of water which was reduced to 10 ml and stored in separate sterilised container. Turmeric solution was prepared similar to that prepared by Waghmare et al, but without the flavouring agent. All the preparations were freshly made and used within 24 hours. Anil Kumar Goyal did microbial analysis of plaque and saliva sample by Dentocult SM strip kit (Orion Diagnostica, Finland). The saliva sample was collected in a simple manner, asking the participating children to spit saliva in a sterile plastic container. The contamination in the operatory field was minimised to the best of the ability. The collected samples were also transported within 2 hours to prevent multiplication of microbes. The microbial study was done by manual counting of CFU.

Rahul Hegde and Shamika Kamath and also Abdelmegid identified bacterial colonies by phenotypic method (morphology, colour, size) using microscope and biochemical reactions like gram staining. The colony was expressed as the number of CFU's per millimetre. The colony counting was done by the same observer under the same conditions and same time to avoid intra observer variability which could alter the outcomes. Anil Kumar et al, Awadalla et al analysed the microbial data using Dentocult SM strip. This study resulted in the reduction of SM in all study solutions. A study done by Awadalla et al also resulted in statistically significant difference among subjects pre and post rinsing with 2 % green tea for 5 mins. Similarly Tehrani et al comparison of green tea with sodium fluoride mouth rinse on salivary S. mutans resulted in significant reduction which was a positive study. Neturi et al compared green tea and chlorhexidine (CHX) and plain water and found that green tea and CHX were equally effective.

Our study conducted resulted comparable to that by Takashi, Awadalla, Chatterjee and Abd Allah et al. Awadalla et al showed that there was a statistically significant difference among subjects who rinsed with 2 % green tea for 5 mins with S. mutans calculation in saliva and plaque, salivary and plaque pH values and GB. Takashi also stated that rinsing with green tea on a regular basis exhibited lessening in plaque S. mutans levels and inhibited cellular adhesion to teeth and concluded that these effects jointly played important part in caries prevention. Chowdaiah and Dhamodhar also concluded that green tea extracts showed greater efficacy against SM similar to that of the commonly used antibiotics whereas honey was found less effective. In the study of Hani Nassar et al, NH wells demonstrated significantly less bacterial growth than the TSB control wells. In a study by English PK also plaque level and bleeding gingival scores were reduced in individuals who chewed honey leathers rather than chewing gums. Fatemeh Ahmadi et al study on the effect of honey, glucose and fructose on enamel demineralisation depth demonstrated that honey had less caries activity than other sugars.

Chattopadhyaya et al also reported that curcumin extracts produce antibacterial activity against

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G+ strains which co relates with Shahi et al who reported curcumin to show potent growth inhibitory effect against G+ bacteria (S. aureus, S mutans). Similary Waghmare et al resulted that chlorhexidine and turmeric mouthwash can be effectively used as an adjunct to mechanical plaque control methods. The results of Najah A. Mohammed also showed that turmeric plant, curcumin exhibited very good antibacterial activities in terms of zone of inhibition against S. mutans and S. pyogenes. The comparison of CHX (0.12%) mouth rinse, combination mouth rinse and green tea extract (0.5%) mouth rinse in children studied by Rahul Hegde et al concluded that green tea mouth rinse could be promising preventive therapy. The master chart showed in some subjects there was a rise in the Strep. Mutans after the rinse with turmeric solution which may be attributed because of the reflux of oropharyngeal micro flora. Turmeric solution was also not palatable in comparison to honey and green tea solution. Turmeric solution was also not completely emptied making it difficult to measure the exact amount used for rinsing. Children also complained of temporary stain due to high concentration of turmeric used.

Limitation

The present study was carried out on a small sample size. Additional broad studies with larger samples must be carried out to establish the effectiveness of honey, green tea and turmeric mouth rinse in the prevention of dental caries. Similarly this study showed the reduction of S. mutans even after single usage of prepared solutions. The prepared solutions would yield a better results if the solution was regularly used.

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