

Averting the microbial factor

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With the gradual shift in paradigm from therapeutic to preventive dentistry, community health programs in developing countries are focusing on host and environmental factors to curb dental caries. However very little emphasis has been laid on the 'Microbial factor' - especially their transmission; the main being horizontal and vertical, and the less discussed being transmission via toothbrushes. The fact that toothbrushes are contaminated after use was acknowledged as early as 1920 by Cobb, who implicated contaminated toothbrushes as a cause of repeated infections of the mouth. Besides the reinfection risk, there is a risk of cross infection when microorganisms on one toothbrush are transferred to others that are kept in close proximity. This ex-vivo study was carried out to determine and compare the microbial colonization of toothbrushes and toothbrush wear in children with dental caries and children without dental caries. Also the effect of parents' educational qualification and awareness on these factors was assessed.

One hundred and twenty school children were included in the study and divided into four groups on the basis of dentition and presence or absence of dental caries: carious primary dentition, non carious primary dentition, carious permanent dentition and non-carious permanent dentition. Old tooth brushes of all the participants were collected and they were provided with new toothbrush and toothpaste for a period of three months. Children were instructed to brush their teeth twice daily. After a period of three months, toothbrushes were collected back. Toothbrush wear of used toothbrushes was checked using subjective toothbrush wear rating scale given by Rawls et al. (1989). Toothbrushes were subjected to microbiological analysis to find out various bacteria on the toothbrushes.

Results revealed that there was a statistically highly significant difference in the number of tooth brushes that showed microbial contamination and wear in children with carious primary and permanent dentition as compared to non carious primary and permanent dentition. This signifies that children with dental caries have a tendency to continue using more worn out brushes that tend to be more contaminated as compared to the brushes of children with non carious dentition. The main bacteria isolated from the toothbrushes were *Escherichia coli*, *Streptococcus mutans* and *Pseudomonas*.

When educational qualification of parents was compared with toothbrush contamination and wear, negative correlation was found which points out to the fact that greater numbers of toothbrushes were contaminated in children of parents who are less qualified as parents themselves must be unaware about proper use and maintenance of oral hygiene aids.

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