Study shows positive influence on dental caries using a multilevel approach

By DTI

SAN FRANCISCO, US: According to a new study, a multilevel approach that includes a dental caries risk assessment, aggressive preventive measures and conservative restorations can dramatically reduce caries incidence. The findings, which support earlier research demonstrating positive results of the assessment and treatment method in a university setting, show that the protocol has the potential to transform dental care for high-risk patients.

“We put the 2012 UCSF [Caries Management by Risk Assessment] clinical study into the real world and showed it works,” said lead author Dr. Peter Rechmann, Professor of Preventive and Restorative Dental Sciences at the University of California, San Francisco (UCSF) School of Dentistry. “The patients at high caries risk who used prescription products went down significantly over time in their risk level. Those in the control group also reduced their risk to a lesser degree, simply by using over-the-counter products that also protect teeth and affect the bacteria.”

Caries Management by Risk Assessment (CAMBRA) is a method that was originally developed in 2003 by a team led by the Dean of the UCSF School of Dentistry Prof. John Featherstone. The method adopts a multilevel approach in which dentists collect patients’ dental and medical histories, conduct clinical examinations to assess caries, and utilise behavioural approaches and chemical treatments to optimise protective factors.

For their two-year study, Rechmann and his colleagues recruited 30 dentists to take part, 18 from private practices and three from community clinics. The study involved 460 patients aged between 12 and 65, split into two groups: the CAMBRA group and control group, with 239 and 221 participants, respectively. In the CAMBRA group, high-risk patients received prescription fluoride toothpaste, a chlorhexidine antibacterial rinse, xylitol mints and a fluoride varnish. The control group received regular fluoride toothpaste, an assumed inactive mouthrinse, sorbitol candies and a nonfluoride varnish.

In follow-up visits at six, 12, 18 and 24 months, new carious lesions or changes in caries risk level were recorded. According to the results, a significantly greater percentage of high-risk participants were classified as lower risk after receiving CAMBRA preventive therapies. Dental caries was low in both groups.

Among 242 patients (27 intervention, 95 control) initially identified as high risk for caries, only a quarter of the patients remained at high risk in the CAMBRA group at 24 months, and just over half (54 per cent) in the control group. Of the 192 low-risk participants (93 intervention, 99 control), most participants remained low risk. The researchers believe this points to the assessment correctly identifying those at risk for caries.

The study, titled “Changes in caries risk in a practice-based randomized controlled trial,” was published in the February issue of the Advances in Dental Research journal.
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LONDON, UK: Together with dental caries and periodontal disease, dental erosion ranks among the top three most prevalent dental conditions. According to a review paper by researchers in London, the reason some people suffer more from erosive tooth wear than others depends not only on their diet, but also on how they consume acidic beverages and foods.

The researchers, from King’s College London Dental Institute, aimed to identify how different behaviours increased the risk of developing severe tooth erosion. Their research drew on a previous study at Guy’s Hospital in London that compared the diet of 300 people with severe erosive tooth wear and of 300 people without.

The Dental Institute researchers found that those most affected were not those that simply consumed acidic drinks or food, but those who did so between meals. People who drank acidic drinks like soft drinks or fruit-flavoured teas twice a day were 11 times more likely to have moderate or severe erosion compared with those who did not.

Among the groups with high potential for tooth erosion are wine drinkers, long-distance drivers, and video gamers, all of whom continually expose their teeth to acidic drinks by swishing or rinsing the liquid around or holding it in their mouths, the researchers said.

“It is well known that an acidic diet is associated with erosive tooth wear; however, our study has shown the impact of the way in which acidic food and drinks are consumed,” said lead author of the study Dr Saoirse O’Toole, clinical lecturer in prosthodontics.

She continued that, with the prevalence of erosive tooth wear increasing, the preventable aspects, such as reducing dietary acid intake for the purpose of delaying progression of tooth erosion, have to be addressed. The risk from soft drinks, for example, can be halved when such beverages are consumed during meals.

“While behaviour change can be difficult to achieve, specific, targeted behavioural interventions may prove successful,” O’Toole added.

In countries like the UK, currently over 30 per cent of adults are estimated to suffer from tooth erosion, which can lead to severe loss of enamel and dentine over time.

The study, titled “The role of the diet in tooth wear,” was published online in the British Dental Journal on 23 February 2018.

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