“The pattern of decay is slowly changing”

An interview with paediatric dentist Dr Rana Yawary, Australia

In Australia, dental caries is the highest cause of preventable hospitalisations of children. In search of a potent anti-caries approach, Dental Health Services Victoria has announced that it is conducting a study on the use of silver diamine fluoride (SDF) for the management of caries. In an interview with Dental Tribune, research project manager Dr Rana Yawary spoke about the benefits and drawbacks of the method and why she thinks SDF has the potential to increase treatment compliance and thereby help ease social inequalities.

Can you explain how and why SDF is used in dentistry?

Topical application of 38 per cent SDF, a liquid cavity cleanser and desensitiser, has been shown to arrest 81 per cent of active caries in primary teeth. Because this treatment is non-invasive and easily performed, it can be a promising strategy for management of dental caries in very young children and avoids dental general anaesthesia. Apart from staining the arrested lesion, there has been no reported significant complication of SDF use among children.

Can you briefly introduce the study design and its objectives?

The study will closely follow more than 400 children aged 2–10 years. The researchers will treat children and monitor them over a year to study the impact of the protocol on cavity progression. They will also measure oral health-related quality of life and treatment satisfaction and acceptability. These results will be compared with those for children who are referred for treatment under general anaesthesia.

What are the benefits of SDF compared with other anti-caries approaches?

The use of SDF provides an alternative in managing early childhood caries in children that aren’t able to cope with extensive dental treatment in the chair. It doesn’t require local anaesthesia—the needle! With each successive dental visit, even the youngest children are consistently more cooperative because they experience their dental visits without pain or discomfort. It’s easy to apply and non-invasive and has the potential to significantly increase access to oral healthcare across the state.

There is one major drawback to the substance, at least aesthetically: it can cause carious tooth structure to turn brown or black.

That is right, and this forms an important component of the informed consent. However, the

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undesirable effects of SDF—dark discoloration of carious dentine—are outweighed by its desirable properties in most cases, and no toxicity or adverse events associated with its use have been reported. The use of a second application using potassium iodide can reduce the staining without affecting the efficacy.

If the study proves successful, could SDF help ease social inequalities in the prevalence of dental caries in children?

Absolutely. Dental caries prevalence occurs on a social gradient, with more disease in children from low socio-economic groups. SDF application can be a cost-effective means of treatment for many disadvantaged children or in areas where there is a great shortage of dental staff. It can even be applied in outreach settings outside of the dental clinic, such as schools, early learning centres, maternal and child health clinics, and playgroups.

So, it would be relatively easy to implement treatment with SDF in daily dental practice?

Yes. The treatment is low-cost. It does not require expensive equipment or supporting infrastructure. Therefore, the programme is easy and inexpensive to set up.

When one compares the costs of the protocol to the cost of managing severe early childhood caries under general anaesthesia, the cost of dental general anaesthesia is disproportionately high. Dental caries is the highest cause of potentially preventable hospital admissions in Victoria for children in the 0- to 19-year-old age bracket. In fact, around 4,500 Victorian children aged 0–14 years are hospitalised every year owing to dental conditions.

Do you think, when addressing the global burden of dental caries, measures such as this are more effective than educational initiatives? Or do they always need to go hand in hand?

Tooth decay is caused by lifestyle factors such as diet and oral hygiene. To eradicate tooth decay, there needs to be education addressing the cause of the disease. Improving global oral health literacy and addressing the social determinants of poor oral health are the keys to reducing the global burden of tooth decay. Topical fluorides form an important part of managing caries, but they do not resolve the need for oral health education and prevention. In fact, we know that if one doesn’t address the cause of the decay process, one can get secondary caries around an arrested cavity after one has applied SDF.

From your personal experience, do you feel that the number of children suffering from severe dental caries has increased or declined in the last few years?

I believe the pattern of decay is slowly changing. The recent Victorian Preschoolers Oral Health Survey revealed that over 56 per cent of Victorian children between the ages of 3 and 5 years present with signs of dental caries. The evidence demonstrates significantly worse figures for children of healthcare and pensioner concession cardholders, Aboriginal people, Torres Strait Islanders and those from non-English-speaking backgrounds. These high-risk communities need to be targeted to help close the gap in the fight against early childhood caries.

It is a proven fact that dental caries is a preventable disease. Why is it that most countries—industrial nations and developing countries alike—still struggle with a high prevalence of dental caries? Tooth decay is preventable, but government bodies and public health organisations need to take the lead in creating strategies to reach those most in need.

There is considerable inequality in the distribution of oral disease, with 80 per cent of the burden of disease in Australia concentrated in only 20 per cent of the population. Dental Health Services Victoria has taken on the challenge, using the latest evidence and data, to help provide an equitable and effective oral healthcare system. Our aim with this protocol is to provide an example of a safe, evidence-based solution that has been trialled and found to be effective in Victoria.

Thank you very much for the interview.