

Controversy about Using SDF in Children

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Dental caries is still an important childhood disease and continues to be seen in children at risk in developed, and underdeveloped countries. The prevalence of caries in children with low-income families, low parenting education, poor parenting attitudes and single-parent families is very high. Unfortunately, it is not possible to use the commonly used methods used in developed countries in developing countries because they are involved in economic and financial issues, lack of health care labor force and lack of appropriate facilities to perform the procedures [1]. On the other hand, children living in low-income societies have many untreated caries, hence, preventive and arresting caries treatments have been proposed for the treatment of these children [2].

Various types of fluoride-containing materials such as silver nitrate, stannous fluoride, and silver diamine fluoride (SDF) fluids have been made for clinical use with high concentrations to stop dental caries. So far, different clinical guidelines have been included removing or not removing caries before the restoration with these substances has been presented. Use of these materials in the ART technique (Atraumatic Restorative Treatment) is remarkable and interesting [3].

In spite of SDF was established as a therapeutic agent in Japan since the late 1960 [4], interestingly, SDF was approved by the US Food and Drug Administration for management of tooth hypersensitivity In 2014, after 7 decades [5]. Needless to say, SDF is not commonly available in some countries of Europe. Also, for children prone to moderate to severe caries from the first tooth eruption to age three, using SDF has been approved by the Brazilian Assistance Program [6]. Australia and China had used SDF to prevent dental decay, for the past few decades [7].

But the question is whether this material can be effective in arresting caries! Even though a lot of researches on SDF and its effectiveness in preventing dental caries have been presented, but for many researchers, it is still questionable.

SDF has been used internationally for decades to arrest dental caries in primary and permanent teeth. Gao SS, et al. reported in published research that two-thirds of all progressed caries lesions into dentine were found to be arrested after treatment with SDF [8]. When teeth with arrested dental decay are not subsequently restored with dental fillings or full coverage crowns, studies show it is advisable to reapply SDF every six months [9].

SDF has a low toxicity. Up to today, no toxic adverse events have been reported [10]. One of the greatest benefits of silver diamine fluoride treatment is that it carries very little risks and is generally free of side effects. The most common reported the adverse effect of SDF is a completely aesthetic not a systemic one; blackening of the treated teeth, but not sound tooth tissues [2,11]. Another concern some parents may encounter is the general safety of fluoride; the controversial issue which seems to be continued. Even though it may not be the best treatment plan in every case, it's definitely one worth discussing concept that parents can have with their family dentist when there is a decision making about dealing with children teeth decays.

Research shows that SDF has twice the strength of fluoride varnishes [12] which are used in preventive dentistry. Application of both agents on the same day should be avoided as the fluoride dose would be additive, and its safety profile in children is unknown.

The use of Sodium Diamine Fluoride 38% (SDF) was recommended by the American Academy of Pediatric Dentistry (AAPD) temporarily in the first evidence-based instruction to use SDF for patients with dental caries. The members of the AAPD group were convinced that the benefits of using SDF in the target population are greater than its adverse effects. However, the group announced that the recommendation is conditional and is being prepared based on poor quality evidence.

In an interview with DrBicuspid.com, on October 11th, 2018, the authors of this temporary guidelines hope that these recommendations will help improve the quality of studies on SDF and may change the way it is treated.

It seems this systematic review is based on evidence from the current guidelines. According to these researchers, recommendations extracted from the guidelines should be strengthened because high-quality studies will increase in the future. On the other hand, regardless of fluoride-containing water, silver diamine fluoride may be the only major innovation in the oral health of children in the last century. With taking into account the lowest cost and ease of use, SDF can also bridge the gap in health inequalities.

Perhaps the goal of introducing this guideline is helping dentists and pediatricians for better understanding of SDF treatment. In other words, all dentists may become aware of this new therapy for the treatment of children who for whatever reason cannot be treated with traditional regenerative therapies, and they will also become aware of the strengths and limitations of this treatment; consequently, they can effectively evaluate who can be a good candidate for this treatment. It might be better to say that SDF may not be 100% effective, so dentists should be aware that careful follow-up should not be forgotten after treatment with SDF; and dentists are advised to consider SDF as part of comprehensive management of caries plan.

Finally, to conclude this issue, the best way to prevent oral and dental diseases is to continue to adhere to the principles of health care. In other words, even though the efficacy of SDF is obvious in caries prevention and arresting caries, but the main role of oral hygiene should be taken into account.

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