

Silver diamine fluoride- innovative tool for managing carious lesions in pediatric dental practice during covid-19 pandemic: Brief communication

Abstract

The current outbreak of the COVID-19 pandemic has spread rapidly across the globe affecting millions of individuals across the world. Silver diamine fluoride is an efficient tool that can be effective for non-restorative caries control. The present article aims to illustrate a brief overview of silver diamine fluoride as a potential tool for non-restorative caries control during pandemics. It encompasses its advantages, disadvantages, clinical applications, contraindications, and the rationale for its use as a possible alternative preventive strategy to manage carious lesions in pediatric patients and suggests its use in routine dental practice during and in the post-COVID-19 era.

Keywords: COVID-19, pandemic, silver diamine fluoride, non-restorative caries control, carious lesions

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Background

The Covid-19 pandemic has impacted the professional lives of all healthcare professionals and dental professionals are no exception. To create a more irreplaceable healthcare system, dental professionals will have to work more meticulously to provide safe dental care and be more versatile in using preventive-based clinical approaches. With the expansion in the horizon of dentistry newer and more economic preventive strategies have evolved to treat dental problems of global concern like dental caries and periodontal diseases. Dental caries can be most effectively managed by prevention. As dental health care professionals, we need to update ourselves with these biological caries management techniques and be flexible enough to incorporate them into our routine dental practice.

Advantages of silver diamine fluoride

Silver diamine fluoride is a clear and odorless liquid with a composition of 25% silver, 8% ammonia, 5% fluoride, and 62% water that combines the antibacterial properties of silver with remineralizing properties of fluoride and is an effective tool for arresting caries.¹ It is available as a 38% solution containing 44,800 ppm fluoride ion with pH 10, and it prevents and arrests coronal caries in deciduous teeth and on the root surfaces of permanent teeth.^{1,2}

The application of silver diamine fluoride (SDF) is a non-invasive treatment option for the management of carious lesions in young children and adolescents. Some of the important advantages of silver diamine fluoride are as follows:

1. Avoids or delays more invasive lesions.
2. Easy to apply, cost-effective and painless for the child patient.
3. Beneficial in remineralization of the natural tooth structure.
4. Prevents the growth of cariogenic biofilms, and minimizes the sensitivity of non-carious lesions.^{2,3}
5. Multiple lesions can be treated in one appointment.
6. It has no serious adverse effects.⁴

Disadvantages of silver diamine fluoride in child patients

Certain disadvantages are associated with the silver diamine fluoride application.

- i. The major disadvantage is the black discoloration of demineralized surfaces after SDF application. This can be a major esthetic concern for children as well as parents.
- ii. Reapplication is recommended until the cavity is restored or exfoliation of the primary tooth occurs

Clinical applications in pediatric dentistry

Silver diamine fluoride is indicated in the following conditions.⁵

- a) In child patients with extreme caries risk i.e. Severe early childhood caries or xerostomia.
- b) Management of child patients with extensive carious lesions which are difficult to treat in one visit.
- c) Desensitization of non-carious tooth lesions and molar incisor hypomineralisation of first permanent molars.
- d) In child patients where extractions are contraindicated due to medically compromised conditions or behavioral management of child patients.
- e) Caries management in children with special health care needs and those with behavior management concerns.
- f) Child patients residing in remote areas with limited access to dental care.

Contraindications

The use of silver diamine fluoride is contraindicated in:

1. The child patient having silver allergy.⁵
2. The child patients with ulcerative gingivitis and stomatitis.⁵

The rationale for using silver diamine fluoride in the COVID-19 pandemic

The pandemic has made it crucial to shift to non-aerosol generating approaches for caries management. Silver diamine fluoride is one such potent tool that can be used as a biological treatment alternative.⁶

It is a technique that does not generate aerosols. A basic understanding of minimally invasive dental preventive procedures is of paramount importance so that silver diamine fluoride can be judiciously used.⁷

SDF application needs to be incorporated into the thought process which reinforces patient assessment and treatment planning to implement minimal invasive dentistry effectively.

Conclusion

In the post-COVID world, dental practice indicates the adoption of preventive healthcare procedures. It is more logical to emphasize preventive procedures based on minimally invasive dentistry and paramount importance should be given to the application of techniques that do not generate aerosols. Non-restorative caries control is the need of the hour. The use of silver diamine fluoride should be highlighted as it does not generate aerosols, and is easy to apply. Dental healthcare professionals should acquire suitable training and knowledge regarding the use of silver diamine fluoride. However, we

recommend that more randomized clinical trials need to be conducted to standardize guidelines for the effective and efficient use of silver diamine fluoride in pediatric patients.

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None

Conflicts of interest

The author declares no conflicts of interest.

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