

2nd European Conference on Dentistry and Oral Health

April 16, 2025 | Paris, France

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Silver Diamine Fluoride (SDF) in Arresting Dental Caries among Young Children

Abstract:

Introduction: Silver diamine fluoride (SDF) is a topical medication used for the prevention and treatment of dental caries, as well as for relieving dental hypersensitivity. SDF 38% is a liquid composed of silver, ammonium, and fluoride ions, with a pH of 10.4 or 13. Ammonia compounds reduce the oxidative potential of SDF, increase its stability, and help maintain a consistent concentration over time. Silver and fluoride ions possess antimicrobial properties and promote the remineralization of enamel and dentin, effectively arresting dental caries.

Materials and Methods: The SDF product has been used in our pediatric dental clinic since 2021. It has been applied to young children aged 1.5–4 years who visited our clinic and were uncooperative during dental procedures, as well as to children aged 4–10 years when early-stage caries was detected during routine check-ups. A total of 133 teeth received the treatment. The application was performed according to the product's instructions. It was used on superficial, moderate, and intermediate stages of early childhood caries (ECC) without pulp involvement.

Results: The children were monitored over a period of two years. Among the treated children, caries progression was arrested in 125 teeth. However, in 8 treated teeth, the caries advanced to the pulp. These cases involved children at high risk for caries and those with early childhood caries (ECC).

Conclusions: SDF is an effective treatment for stopping the progression of cavities after they have formed. It eliminates bacteria that break down tooth surfaces and prevents their spread to other teeth. SDF is often recommended as a more comfortable alternative to drilling cavities. Furthermore, the treatment is quick and requires no specialized equipment.

Biography

Manola Kelmendi, PhD, is a distinguished Specialist in Pediatric Dentistry. Over the past 35 years, she has served as a lecturer at the Public Dental Faculty in Tirana, Albania, while simultaneously maintaining a private dental practice in the city. Dr. Manola is author of numerous scientific articles published both within Albania and internationally.