

Non-invasive Treatments for Early Childhood Caries (ECC): A New Era in Pediatric Dentistry

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Editorial

Early childhood caries (ECC) is a pervasive and debilitating disease affecting millions of children worldwide. The traditional restorative approach, although effective, often requires invasive procedures, which can be traumatic for young children [1]. Furthermore, ECC can have far-reaching consequences, including pain, infection, and malocclusion, which can impact a child's quality of life and overall well-being. Fortunately, recent advancements in pediatric dentistry have led to the development of non-invasive treatments for ECC, offering a promising alternative to traditional restorative approaches. These treatments prioritize prevention, minimal intervention, and patient-centered care, aligning with the principles of modern pediatric dentistry.

One such treatment is silver diamine fluoride (SDF), which has gained significant attention in recent years. SDF is a topical agent that has been shown to be effective in arresting caries progression, reducing tooth sensitivity, and preventing new caries lesions [2]. Moreover, SDF is easy to apply, non-invasive, and relatively inexpensive, making it an attractive option for parents and caregivers. The application of SDF is straightforward, and its effects are long-lasting. Studies have demonstrated that SDF can prevent caries progression in primary teeth for up to 24 months [2]. Additionally, SDF has been shown to be effective in reducing tooth sensitivity, which is a common complaint among children with ECC.

Another non-invasive approach is ozone therapy, which has been shown to be effective in treating ECC. Ozone therapy involves the application of ozone gas to the affected tooth,

which has antibacterial properties that can help to reduce bacterial counts and prevent caries progression [3]. A recent *in vivo* prospective study found that ozone therapy significantly reduced bacterial counts and prevented caries progression in primary teeth. Ozone therapy is also non-invasive, painless, and does not require the use of anesthesia or drills. This makes it an attractive option for young children who may be anxious or fearful of dental procedures. Furthermore, ozone therapy can be used in conjunction with other non-invasive treatments, such as SDF, to provide a comprehensive approach to ECC management.

Non-restorative cavity treatment (NRCT) is another non-invasive approach that has gained popularity in recent years. NRCT involves the use of fluoride varnishes, SDF, or other topical agents to arrest caries progression, without the need for restorative procedures [4]. This approach is particularly useful for young children who may not be able to tolerate invasive procedures. NRCT prioritizes prevention and minimal intervention, aligning with the principles of modern pediatric dentistry. By using topical agents to arrest caries progression, NRCT can help to prevent the need for more invasive procedures, such as fillings or extractions. Furthermore, NRCT can be used in conjunction with other non-invasive treatments, such as SDF and ozone therapy, to provide a comprehensive approach to ECC management.

A recent review of preventive and restorative approaches for ECC highlighted the importance of minimal intervention procedures in managing ECC [5]. The review emphasized the need for a paradigm shift in ECC management, from traditional restorative approaches to non-invasive, preventive

strategies. The review also highlighted the importance of patient-centered care in ECC management. By prioritizing the needs and preferences of children and their families, pediatric dentists can provide more effective and compassionate care [5]. Non-invasive treatments, such as SDF, ozone therapy, and NRCT, align with the principles of patient-centered care, prioritizing prevention, minimal intervention, and comfort.

In conclusion, non-invasive treatments for ECC, such as SDF, ozone therapy, and NRCT, offer a promising alternative to traditional restorative approaches. These treatments prioritize prevention, minimal intervention, and patient-centered care, aligning with the principles of modern pediatric dentistry. As dentists, it is our responsibility to stay abreast of the latest advancements in ECC management and to provide our patients with the best possible care and enhance Paediatric dental education [6]. By incorporating non-invasive treatments into our practice, we can provide more effective, compassionate, and patient-centered care for children with ECC.

Declarations

Conflict of interest

The authors declare that they have no competing interests.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Credit authorship contribution statement

Conceptualization: Muhammad Anas; formal analysis and investigation, original draft preparation; writing—review and editing; All authors approved the final version.

Declaration of competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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