

Policy on Interim Therapeutic Restorations (ITR)

Originating Council

Council on Clinical Affairs

Review Council

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Adopted

2001

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2004, 2008

Purpose

The American Academy of Pediatric Dentistry (AAPD) recognizes that unique clinical circumstances can result in challenges in restorative care for infants, children, adolescents, and persons with special health care needs. When circumstances do not permit traditional cavity preparation and/or placement of traditional dental restorations or when caries control is necessary prior to placement of definitive restorations, interim therapeutic restorations (ITR)¹ may be beneficial and are best utilized as part of comprehensive care in the dental home.^{2,3} This policy will differentiate ITR from atraumatic/alternative techniques (ART)⁴ and describe the circumstances for its use.

Methods

This policy is based upon a review of current dental literature. A MEDLINE search was performed using key words “dental caries”, “atraumatic restorative treatment”, and “glass ionomer cement”.

Background

Atraumatic/alternative restorative technique (ART) has been endorsed by the World Health Organization as a means of restoring and preventing caries in populations with little access to traditional dental care.⁴ In many countries, practitioners provide treatment in non-traditional settings that restrict restorative care to placement of provisional restorations. Because circumstances do not allow for follow-up care, ART mistakenly has been interpreted as a definitive restoration. ITR utilizes similar techniques but has different therapeutic goals. Interim therapeutic restoration more accurately describes the procedure used in contemporary dental practice in the US.

ITR may be used to restore and prevent further decalcification and caries in young patients, uncooperative patients, or patients with special health care needs or when traditional cavity preparation and/or placement of traditional dental restorations are not feasible and need to be postponed.^{5,6} Additionally, ITR may be used for step-wise excavation in children with multiple open carious lesions prior to definitive restoration of the teeth.⁷

The use of ITR has been shown to reduce the levels of cariogenic oral bacteria (eg, mutans streptococci, lactobacilli) in the oral cavity.⁸⁻¹⁰

The ITR procedure involves removal of caries using hand or slow speed rotary instruments with caution not to expose the pulp. Leakage of the restoration can be minimized with maximum caries removal from the periphery of the lesion. Following preparation, the tooth is restored with an adhesive restorative material such as self-setting or resin-modified glass ionomer cement.¹¹ ITR has the greatest success when applied to single surface or small 2 surface restorations.^{12,13} Inadequate cavity preparation with subsequent lack of retention and insufficient bulk can lead to failure.¹² Follow-up care with topical fluorides and oral hygiene instruction may improve the treatment outcome in high caries-risk dental populations.

Policy statement

The AAPD recognizes ITR as a beneficial provisional technique in contemporary pediatric restorative dentistry. ITR may be used to restore and prevent dental caries in young patients, uncooperative patients, patients with special health care needs, and situations in which traditional cavity preparation and/or placement of traditional dental restorations are not feasible. ITR may be used for caries control in children with multiple carious lesions prior to definitive restoration of the teeth.

References

1. American Academy of Pediatric Dentistry. Clinical guideline on pediatric restorative dentistry. *Pediatr Dent* 2008; 30(suppl):163-9.
2. Nowak AJ, Casamassimo PS. The dental home. *J Am Dent Assoc* 2002;133(1):93-8.
3. American Academy of Pediatric Dentistry. Policy on the dental home. *Pediatr Dent* 2007;29(suppl):22-3.
4. Frenken J, Pilot T, van Amerongen E, Phantumvanit P, Songpaisan Y. Manual for the atraumatic restorative treatment approach to control dental caries, 3rd ed. WHO Collaboration. Centre for Oral Health Services Reseach. Groningen, The Netherlands; 1997.

5. Deery C. Atraumatic restorative techniques could reduce discomfort in children receiving dental treatment. *Evid Based Dent* 2005;6:9.
6. Gryst ME, Mount GJ. The use of glass ionomer in special needs patients. *Aust Dent J* 1999;44(4):268-74.
7. Vij R, Coll JA, Shelton P, Foroog NS. Caries control and other variables associated with success of primary molar vital pulp therapy. *Pediatr Dent* 2004;26(3):214-20.
8. Bonecker M, Grossman E, Cleaton-Jones PE, Parak R. Clinical, histological and microbiological study of hand-excavated carious dentine in extracted permanent teeth. *SADJ* 2003;58(7):273-8.
9. Carvalho CK, Bezerra AC. Microbiological assessment of saliva from children subsequent to atraumatic restorative treatment (ART). *Int J Paediatr Dent* 2003;13(3):186-92.
10. Wambier DS, dosSantos FA, Guedes-Pinto AC, Jaeger RG, Simionato MRL. Ultrastructural and microbiological analysis of the dentin layers affected by caries lesions in primary molars treated by minimal 88 intervention. *Pediatr Dent* 2007;29(3):228-34.
11. Yip HK, Smales RJ, Ngo HC, Tay FR, Chu F. Selection of restorative materials for the atraumatic restorative treatment (ART) approach: A review. *Spec Care Dent* 2001;21(6):216-221.
12. Mandari GJ, Frencken JE, van't Hof MA. Six-year success rates of occlusal amalgam and glass-ionomer restorations placed using three minimal intervention approaches. *Caries Res* 2003;37(4):246-53.
13. Dulgergil CT, Soyman M, Civelek A. Atraumatic restorative treatment with resinmodified glass ionomer material: Short-term results of a pilot study. *Med Princ Pract* 2005;14(4):277-80.