ART for treating root caries in older people

Is the atraumatic restorative technique an effective method of treating root caries in older people?

Lo EC, Luo Y, Tan HP, Dyson JE, Corbet EF.

ART and conventional root restorations in elders after 12 months. J Dent Res 2006; 85:929–932

Design This was pseudo-randomised controlled trial.

Intervention Root caries lesions were prepared either using the atraumatic restorative technique (ART), using only hand instruments then restoration with a high-strength chemically cured glass-ionomer material (Ketac Molar; 3M Espe, Seefeld, Germany), or conventionally, using dental burs and restoration with a resin-modified glass-ionomer material. (Fuji II LC, GC Corporation, Tokyo, Japan).

Outcome measure The presence and status of the restoration, and the need for replacement or repair, were assessed. Sound restorations or restorations with only a marginal defect or wear of <0.5 mm (measured by the ball tip of a CPI periodontal probe) were classified as having survived. The modified US Public Health Service (USPHS) criteria for evaluation of restorative materials were also used to assess the status of the restorations with respect to retention, marginal integrity, marginal discoloration, recurrent caries, anatomical form and surface texture.

Results In total, 162 restorations, comprising 78 ART and 84 conventional, were placed in 103 elderly people (72 women and 31 men) who had a mean age of 78.6 years. The vast majority received either one or two root restorations. Only three of the restorations involved multiple surfaces. After 12 months, 59 ART and 63 conventional restorations in 77 participants were examined. The main results at 12 months are shown in the Table 1. There were no statistical differences between the two types of restorations for each of the USPHS criteria or for 12 month cumulative survival rates (ART, 87.0%; conventional treatment, 91.7%).

Table 1. Results at 12 months

Restoration	ART (n; %)	Conventional (n; %)
Sound	39 (66.1)	42 (66.7)
Failed	8 (13.6)	5 (7.9)

ART, Atraumatic restorative technique.

Conclusions In elderly people living in care homes, the 12-month survival rate of glass-ionomer restorations placed on root surfaces using the ART was high and comparable with conventional restorations.

Commentary

A recent World Health Organization review of the global oral health of older people outlined the diverse range and huge scale of issues facing a rapidly ageing population.¹ Burgeoning need and scarce resources are the dominant themes and, for most of the world, finding cheap, quick and effective techniques is a priority.

This study addresses a possible solution to one clinical problem. The ART technique has been widely used to manage caries in children where resources are limited. It would seem equally well suited for treating root caries in older adults, a common and awkward clinical problem. ART uses simple technology to its best advantage. Glass ionomer cements stick to teeth and release fluoride so conventional cavity preparation can be dispensed with. Instead, hand instruments are used to remove soft dentine. This conveniently also eliminates the need for local anaesthetic in most cases. It should be quicker, easier, and cheaper.

No matter how promising it is, global uptake of a new technique requires and deserves good evidence. This clinical study ticks most of the boxes for a randomised clinical trial. It is technically only pseudo-randomised, but the assessors were blinded, the question was focused and the inclusion and assessment criteria are described. The outcome measure was simple — restoration survival at 1 year comparing ART with conventional restorations. ART restorations showed a slightly but not statistically significantly lower survival at 1 year.

How should we interpret negative findings in trials like this? The answer is, with care. A year is not long, so was the study underpowered to pick up a difference at this stage? How long should we expect a root surface restoration to last in an older person anyway? The findings reported are welcome and interesting and should encourage us to think seriously about the use of ART in some circumstances, but without longer term data we should also think carefully about these results in the context of individual clinical decisions. ART is probably much better than nothing, so where nothing is the alternative (including in domiciliary settings) ART restoration should give good short-term service. But what about in our own surgeries: should we be using ART routinely? It was never really intended for surgery use and on the basis of this short-term evidence, that should not change. Hopefully the promised 36 months follow-up will help to clarify the possibilities and limitations of the technique.

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1. Petersen PE, Yamamoto T. Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. *Commun Dent Oral Epidemiol* 2005; 33:81–92.

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