Practice-based assessment

The PREP Panel evaluates 3M ESPE's RelyX Ultimate adhesive resin cement.

Luting materials are needed to fill the space (hopefully not more than 50 micrometers) between an indirect restoration and the tooth preparation. These may roughly be classified into:

- Active – in which the luting material actually helps to bond the restoration to the tooth, and
- Passive – in which the luting material simply fills the space between the tooth and the restoration.

It may appear obvious that ‘active’ materials are to be preferred over ‘passive’ since the active luting materials may help make up for deficiencies in the retention of the preparation or a lack of height of the tooth being prepared. In this regard, the only truly active luting materials are those which are resin-based, as these can be used in combination with a dentine bonding agent.

Resin luting materials also exhibit advantages over traditional luting materials such as phosphate cement, or glass ionomer luting materials. They are insoluble in the dilute organic acids which are found in plaque in major advantage, since plaque may be present at the gingival margin of crowned teeth where the luting material may be exposed; while materials such as phosphate and glass ionomer are not. Their physical properties are excellent and they are tooth coloured.

However, the uptake of resin luting materials was initially slow, other than for the placement of porcelain laminate veneers and resin-retained bridges, but they are now becoming much more widely accepted, with 45 per cent of a group of UK dental practitioners who responded to a survey stating that they used a resin luting material, and with a higher proportion of dentists who had graduated <10 years using resin luting than dentists who had graduated earlier. By contrast, phosphate cement was still used by 28 per cent of respondents for single units and 26 per cent of respondents for multiple units.

It is therefore the purpose of this study to evaluate the handling characteristics of a newly-designed and recently-introduced resin luting material, 3M ESPE's RelyX Ultimate, when used by a group of UK general dental practitioners.

Materials and methods

A questionnaire was designed jointly by the PREP Panel co-ordinators and the manufacturer of Rely X Ultimate (3M ESPE AG) in order to provide background information on the current usage of resin-based luting cements by the participating practitioners and to rate the presentation, instructions, dispensing, ease of use and handling of the new material, with the majority of responses being given on a visual analogue scale (VAS).

All 33 members of the PREP Panel were sent a letter asking if they were prepared to evaluate a new resin-based luting system, with 12 members being selected at random from those who gave a positive response. All were male, and the average time since graduation was 23 years, with a range of 10 to 43 years.

When the evaluators were asked to rate the overall ease of use of the resin luting material, the results were as follows:

- Poor
- Excellent

Comments from the evaluators:

- "The use of the material is better than a drawer of different types" and "Great to have one box to do all."

A total of 143 restorations were placed using Rely X Ultimate and when the evaluators were asked to rate their (and also their dental nurses') assessment of the dispensing and handling of the system, the result was as follows:

- Inconvenient
- Convenient

Ten (83 per cent) of the evaluators stated that the number of shades available was sufficient and seven (58 per cent) of the evaluators used the Rely X Ty-in pastes contained in the kit of these, six (86 per cent) stated that the pastes were useful.

The evaluators were asked to rate the flow of the material was satisfactory when pressure was applied during placement of indirect restorations, with the following result:

- No
- Yes

The viscosity of the material was rated by the evaluators as follows:

- Too thin
- Too viscous

When the evaluators were asked to rate the overall ease of use of Rely X Ultimate, the result was as follows:

- Difficult to use
- Easy to use

As Rely X Ultimate is indicated for cementation of zirconia restorations along with additional pre-treatment steps, the evaluators were asked if it was an advantage for the same luting material to be used for all indications and 92 per cent (n=111) stated that it was. The same number (92 per cent) also considered it advantageous to be able to use Scotchbond Universal adhesive both for bonding to the tooth and as a linate and restoration primer.

When the evaluators were asked to describe how Rely X Ultimate compared with the resins luting material previously used, all the evaluators described it as similar or better handling and 63 per cent (n=10) described the working time as similar or better.

Ten (83 per cent) of the evaluators stated that they would purchase the material if available at average cost.

Comments from the evaluators:

- "A single luting material is better than a drawer of different types" and "Great to have one box to do all."

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