

Self-Etch and Etch-and-Rinse adhesives in class V restorations: Clinical performance over 2-years



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INTRODUCTION The cervical dental hard tissues loss is a clinical model for evaluating the performance of adhesive restorations in non-retentive preparations.

OBJECTIVE The aim of this study was to compare the clinical performance at 2-years, of Self-Etch (SE) and Etch-and-Rinse (ER) adhesives in composite restorations of non-carious cervical lesions (NCCL).

MATERIAL and METHODS Prospective clinical trial, approved by UFP-FHS Ethics Committee, in 29 adult patients with 77 restorations randomly allocated according to two groups (microhybrid composite/adhesive system); SE Group: 43 restorations, Amaris®/FuturabondNR); ER Group: 34 restorations, Amaris®/SolobondM (Voco GmbH). All restorations were evaluated (aesthetic, functional and biological parameters) at baseline and at 2 years, using USPHS criteria and Hickel and colleagues (2007) recommendations, by three calibrated (ICC≥0.928) examiners. SE and ER efficacy (success rate) was evaluated at 2 years follow-up; Statistical analysis with nonparametric tests (alpha=0.05).

RESULTS

At 2 years, both the SE (n=40; 7% dropout) and ER (n=34; 0% dropout) restorations showed success rates of 100% (Fisher/Chi-square tests, $p > 0.05$) (Table 1). No significant differences were found between SE and ER ($p > 0.05$) regarding aesthetic, functional and biological restorations performance except for surface staining ($p=0.012$), for wear ($p=0.012$), patient's view ($p=0.012$) and tooth integrity ($p=0.009$), with less changes for ER restorations.

Table 1 - Success rates (Alpha / Bravo Ryge scores or level 1, 2 and 3 Hickel* and colleagues levels) for Class V restorations with SE and ER adhesive systems at 2 years follow-up.

Clinical parameters	SE Adhesive	ER Adhesive	p-value
Aesthetic	100%	100%	$p > 0.05$
Functional	100%	100%	$p > 0.05$
Biological	100%	100%	$p > 0.05$
Success %	100%	100%	$p > 0.05$

*Source: Hickel et al., 2007 and Cvar and Ryge, 2005.

Table 2- Evaluation results and longitudinal differences regarding clinical performance of Class V restorations with SE and ER adhesives.

U.S. Public Health Service* Criteria	Baseline to 2 years follow-up (p-value)	
	SE Adhesive	ER Adhesive
Aesthetic parameters		
Surface Luster	0.016**	0.125**
Surface Staining	0.002***	0.008***
Colour stability and translucency	0.020**	0.008**
Anatomic Form	<0.001**	<0.001**
Functional parameters		
Fractures and retention	0.012***	0.008**
Marginal Adaptation	<0.001**	<0.001***
Wear	0.002***	0.014***
Contact Point / Food Impact	<0.001***	<0.001***
Patient's view	<0.001**	0.008***
Biological parameters		
Postoperative Hipersensitivity, tooth vitality	NA	NA
Recurrence of Caries, erosion, abfraction	NA	NA
Periodontal response (always compared to a reference tooth)	NA	NA
Tooth integrity (enamel cracks)	<0.001***	0.009**
Adjacent mucosa	NA	NA
Oral and general health	<0.001**	0.250**

*Source: Hickel et al., 2007 and Cvar and Ryge, 1971. NA: not applicable; McNemar test**; Wilcoxon test***

Regarding baseline to 2 years follow-up (Table 2), SE and ER restorations showed significant changes in aesthetic (McNemar / Wilcoxon tests; $p < 0.020$ and $p < 0.008$, respectively), functional ($p < 0.012$ and $p < 0.014$) and biological ($p < 0.001$ and $p = 0.009$) parameters.

DISCUSSION and CONCLUSIONS

The effectiveness of restorations with SE and RE is high and similar at two-years follow-up. Aesthetic, functional and biological performance of restoration with ER appears to be better than with SE adhesive. However, a continuous and longer evaluation of these adhesive restorations longevity is necessary. The adhesives ER and SE in composite restorations of NCCL indicate a clinically acceptance and a comparable performance in the mean-term evaluation.

ACKNOWLEDGMENTS: VOCO GmbH, Cuxhaven, Germany.

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