

Microleakage of newly developed nano ionomer and glass ionomer cement restoration

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Aim. The aim of this in-vitro study was to evaluate the marginal integrity and microleakage of newly developed nano ionomer and glass ionomer cement after thermocycling and heating. **Method.** The materials tested were nano ionomer (Glass Carbomer, Glass Carbomer® Products, LOT8803839) and fast setting glass ionomer (GC Fuji IX GP EXTRA, GC, LOT0801163). Ten specimens were assigned to each material, restored and cured using an external heat source (Bluephase 16i, Ivoclar Vivadent) for 40s according manufacturer's instructions. Class V restorations were placed on lingually and vestibular surface of each tooth filled with tested materials. All samples were stored in distilled water at 37°C for 24 hours and then thermocycled in 5°C and 55°C water bath for 1800 cycles with a 10s dwell time. After thermocycling the teeth were immersed in a silver nitrate dye solution for 24 h and embedded in acrylic resin. Samples were sectioned longitudinally through the center of the restoration. The sections were examined for microleakage. The microleakage scores were determined using the dye penetration distance ratio according to Oberholzer. The worst score of microleakage per restoration were calculated. Data were statistically analyzed by using Kruskal-Wallis and Mann-Whitney U-test. **Results.** The heat-cured Glass Carbomer showed lower microleakage values than fast setting glass ionomer although there were no statistically significant difference between tested materials.

Conclusion. This in-vitro study emphasized the efficacy of nano-ionomer cements that can be used in routine clinical practice.

STATISTICS

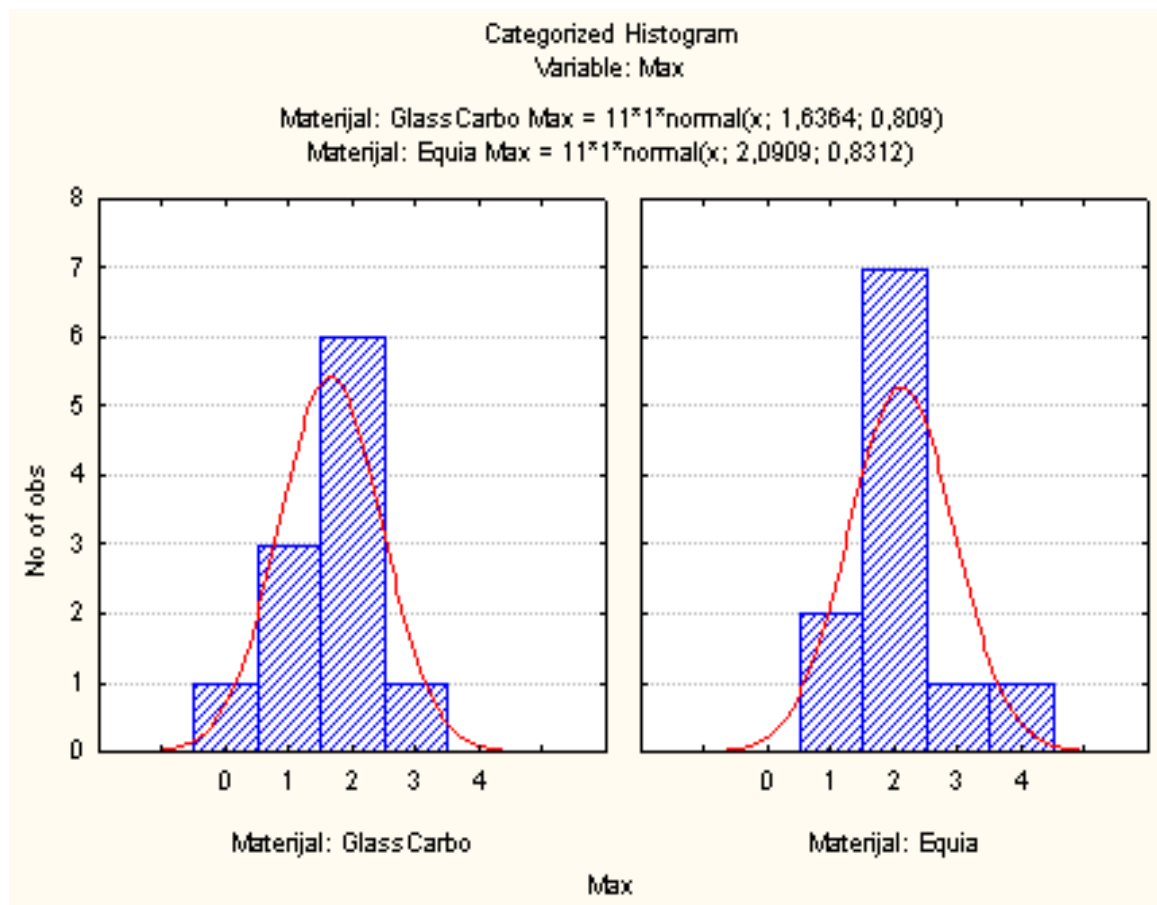
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Depend.:	Kruskal-Wallis ANOVA by Ranks; Max (Glass Carbomer-marginal leakage)			
Max	Kruskal-Wallis test: H (1, N= 22) =1,239669 p =,2655			
	Code	Valid N	Sum of Ranks	
GlassCarbo	1	11	111,5000	
Equia	2	11	141,5000	

Mann-Whitney U Test (Glass Carbomer-marginal leakage)

Marked tests are significant at $p < ,05000$

	Rank Sum Group 1	Rank Sum Group 2	U	Z	p-level	Z adjust ed	p-level	Valid N Group 1	Valid N Group 2	2*1sided exact p
Material	104,5000	15,5000	12,5000	0,084921	0,932324	0,098058	0,921886	13	2	0,933333



Summary Frequency Table (Glass Carbomer-marginal leakage)

(Marginal summaries are not marked)						
Materijal	Max	Max	Max	Max	Max	Row
	0	1	2	3	4	Totals
GlassCarbo	1	3	6	1	0	11
Equia	0	2	7	1	1	11
All Grps	1	5	13	2	1	22