

THE COLOUR OF COMPOSITE BONDING

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ABSTRACT. In recent years, with the advent of more and more marketing materials to restore coronary dentist has a wide range of choice in direct restoration dental crown. Also another factor influencing the use of composites is increasing requirement of the patient's aesthetic function. This study aims chromatic behavior of composite materials, chosen at random, for a period of one year from the time of condensation of material in the cavity and to the evaluation of restorations after 1 year, in terms of color modification inserting the cavity material, oral hygiene, plaque, diet, smoking and recurrent caries. The study is relevant in restoring aesthetic function, because lately it prevails in most maneuvers restorative dentistry in the dental office. That is why we are facing the class of composites that we have found that the most relevant would be the light-curing because they are most in terms of color stability oral environment over time.

KEYWORDS: color, aesthetic function, light-curing composite, crown restoration, fillings.

INTRODUCTION

In recent years, with the advent of more and more marketing materials to restore coronary dentist has a wide range of choice in direct restoration dental crown. Also another factor influencing the use of composites is increasing requirement of the patient's aesthetic function.

Natural tooth structure must be preserved and protected as much as possible because no material crown restoration can not replace lost your teeth perfectly, they have no enamel and dentin qualities. To remove enamel or dentin one must have a reason, because the best filling material is still a bad replacement for natural tooth structure. Restoration of dental morphology is also difficult. Preparation of holes will weaken the remaining tooth structure inevitably and any replacement of fillings and more resistance will decrease tooth.

When a carious lesion has evolved beyond the possibilities of making remineralization and preventive treatment is necessary to replace a structure destroyed dental restorative material crown. To restore the crown sufficiently damaged by decay must consider several factors that we discuss below in this study. No filling material of choice is not universal and fair is essential to ensure optimal color filling is both time and the photopolymerisation insertion and time.

The natural tooth color and shape changes constantly during life while composite restorations have in turn changes the structure and color. It is therefore not possible at present to ensure a composite restoration to stay permanently undetectable. There are several problems that arise and change physiognomic appearance of the teeth such as modifications of color in

the moment of insertion of the material into the cavity when not always follows the nuances of the key colors, oral hygiene, plaque bacteria, diet, smoking, recurrent decay, etc. devitalization , as well as a number of methods that can be applied to modify or improve the situation. Not all these methods are perfect or have a permanent effect, and alternatives should be presented and discussed with the patient.

Restoration of the tooth crown in accordance with the direct physiognomic aspect is closely correlated with several factors of which we mention: the shape and surface texture of dental shade selection. When a carious lesion has evolved to the point where it exceeded remineralization stabilization becomes

necessary to remove and replace the affected tooth portion of reconstructive material. Selection of reconstructive material has a significant effect on survival of filling is because the material will influence the longevity of the tooth itself.

Composite resins are used in principle to their direct insertion into the prepared cavity or rolling over the surface of their teeth to improve appearance physiognomy. Composites are materials of choice for the restoration of relatively minor defects of hard dental structures. Their benefits are represented by non-invasive technique, prompt and inexpensive. Although resins tend to wear out and to change color over time, can be restored or replaced quickly and atraumatic, with minimum loss of tooth structure.

In what follows, restoration materials chosen at random in this study will be analyzed in terms of aesthetics, to give the practitioner the opportunity to make a selection in the cavities to be restored with this

type of material. The reason we facing the class and their composites have found that the most relevant would be the light-curing, as they present the greatest color stability in the oral environment conditions over time.

MATERIALS AND METHODS

Clinical study was performed on a group of 44 patients aged 18-45 years, over a year. The study comprises three phases. The first step was assessing coronary restorations when direct insertion composite material light cure crown restoration. The second stage review and evaluate the quality of coronal restorations in terms of color after a period of six months after application. The third stage includes analysis and evaluation of fillings after 1 year. Crown restoration materials directly chosen at random in the study are: Filtek Z250 (3M ESPE), Premise (Kerr Hawe) and degree (GC America). In the following we report some details of the sheet manufacturer.

Filtek Z250 restorative material is a composite restoration, with a photopolymerisation propriety, radiopaque. This material was developed for use both prior and posterior restorations. Premise is a nanocomposite produced by Kerr Hawe of Bioggio (Switzerland). It is a tri-modal nanocomposite technology - prepolymerizable particles (PPP), submicron hybrid filler 0.4 mm, 0.2 nm nanoparticles and 84% by weight filler. It is indicated in all types of direct restorations (class I, II, III, IV, V, atypical cavities, bonded, etc. Leads to a natural color, even using a single tone.

GC degree is a unique light-curing composite micro-ceramic crowns, bridges, inlays and facets, which compared to conventional composites lead to the similar color of natural teeth restoration.

Used material	Used abbreviation
FILTEK Z250	F250
PREMISE	P
GC GRADIA	G

To assess coronary restorations have taken into account the following factors: color of the material moficările insertion cavity, oral hygiene, plaque, diet, smoking and recurrent caries. In the study were noted

as clinically inappropriate, fillings who had one or more of the factors outlined above, which were within the limit of clinical tolerance. They noted with clinically relevant coronary restorations, which were not morpho-structural changes, which did not affect chewing function and aesthetic dental jaw apparatus.

For materials of restoration corona light-curing acrylic resin (Filtek Z250, degree and Premises) was done in strict isolation of the tooth, dentine wound treatment with hydrogen peroxide, making pulp protection by capping with calcium hydroxide (except for superficial cavities) brush in a cavity in a step etch adhesive (Kerr, Opti-Bond Solo Self-etch) with respect to the manufacturer. Inserting the cavity filling material was using spatula, carefully following condensation of the material, without bubbles, and then the material was light-curing (curing time was based on indications given by the manufacturer crown restoration material used) . The final restoration of coronary occlusion and was adapted completed.

In the 44 selected patients , 62 were made with direct coronal restoration crown restoration materials chosen, and were made 18 such fillings with Filtek Z250 representing a rate of 37% 21de fillings were made with the Premises at the rate of 34% and 23 fillings with GC Gradia representing a rate of 29% as shown in Figure 1



Figure 1. The percentage of each type of material filling in the studied group

Coronal restorations were made both on vital teeth and the devitalised teeth.. Of the 18 fillings with Filtek Z250 12 were performed on vital teeth in 66% and 6 were performed on devitalised teeth the percentage of 34%. Of 21de fillings made with Premise 16 were performed on vital teeth in 76% and 5 were made on devitalised teeth in 24%. Of the 23 fillings with GC grade 14 were performed on vital teeth in 60% and 9 were made on devitalised teeth in 40%.

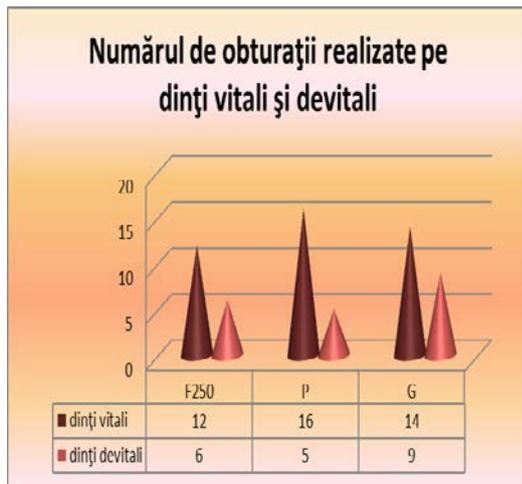


Figure 2 Graphic with the number of vital and devitalised teeth fillings

RESULTS

At the first examination performed immediately after the coronary by inserting restorations and curing filling materials in the cavity was monitored by color difference between material inserted into the cavity, and after curing a nonphotopolymerisable texture and color by comparing it with hard dental structures in the immediate vicinity of the cavities prepared in advance .

Of the 18 fillings with Filtek Z250 in the 12 vital teeth restorations made which corresponded in terms of color were number 11 and a failure of the 6 devitalised teeth made four color matched in terms and two not. Of Premises 21de fillings made with 16 vital teeth all fell short of the 5 color and made a devitalised teeth did not correspond in terms of color. Of the 23 GC fillings with 14 degrees of vital vital teeth performed all color matched and two restorations have failed to meet the terms of the 9 devitalised teeth color



Figure 3 graphs the relationship between proper and improper vital and devitalised teeth fillings

In terms of color, as shown in the graph in Figure 3 digit 1 corresponds to the number of vital teeth fillings

corresponding to the three types of fillings, figure 2 represents the number of fillings in teeth color-stranded vital. Figures 3 and 4 are for devitali teeth, and 3 is the most appropriate and 4 for the necorespunzătoare. At the second examination after 6 months, I watched the factors considered at baseline and color of the material that is moficările insertion cavity, oral hygiene, plaque, diet, smoking and recurrent decay, and found that the situation was same as the first examination immediately after insertion into the cavity.

After a year at the third examination taking into account factors that may influence the light-curing composite crown restorations colors we found that: most influence on color change was a plaque and especially the restoration material Filtek Z250 crown, which was followed by GC coronary filling material gradually and the least affected was composite Premises.

Factor that influenced the least chromatic crown restorations was recurrent caries in only two cases, the GC Gradia composite material where there were fractures of the teeth due to trauma. Factors that had a medium influence on the chromatic descending fillings were smoking and nutrition.

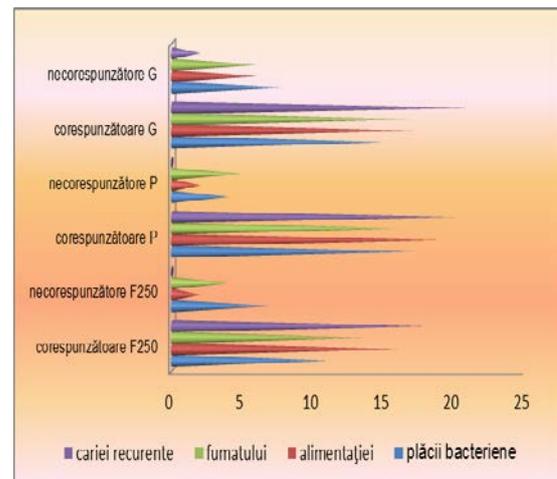


Figure 4 The situation in terms of color fillings made after 1 year.

In a study we found that after a year in the oral environment conditions found in a constantly changing due to factors tracked by us in this study material was Premises had the fewer color changes probably due to finishing and polishing easier and sustainable because nanofilling , polishing is maintaining a long period of time, as is shown in the manufacturer's data sheet ..



Figure 5 coronary restoration of Premises

Very good initial appearance in terms of color given by GC degrees due to a simultaneous approach improving manufacturer of resin color shades in combination with application technique to improve the research that led to a system where the final restoration is color, hue and brightness, while minimizing the lack of translucency feature composites. This is mentioned in the manufacturer's data sheet.



Figure 6 coronary restoration of GC Gradia

As mentioned in the data sheet and producer: the filling and the finished surface will be modeled with fine diamond cutters or stones, proximal surfaces will

be modeled with Sof-Lex finishing strips TM, manufactured for 3M ESPE, the finishing / polishing is polished fillings finishing and polishing with the Sof-Lex and gums with white stones where records do not match, we see that the technique is laborious and if not followed can lead to color changes.



Figure 7 Restoration with Filtek Z250 crown after a year

DISCUSSION AND CONCLUSIONS

The results of the study confirms that color stability of a direct composite crown restoration material is in close relationship with a best finish and polishing with respect to the indications given by the manufacturer. However new factors in this study follow along sometimes unsuitable environmental conditions influence definitely chromatic mouth restorations in general and as shown in this study and class materials to restore direct coronary acrylic resin, light-curing composites.

Composites are materials of choice for front teeth restoration faults at this precedence as aesthetic function, so it is important color stability of restorative material used. In addition to information provided by the manufacturer, and clinical indications of these materials bring the study of comparative information between the various types of materials: Premise, Filtek Z250 and GC degree to which the color stability of these materials.

Based on data obtained studying the best color stability of restorative material has a direct coronary light-curing acrylic resin nanocomposite premises. It presents the best clinical results with the fewest failures at the time of insertion in the cavity and after a year. Presents a failure when inserting in the cavity and teeth devitali no failure in vital teeth. After one year the percentage of coronary improper restoration lies around 20%.

Direct composite restorative material crown GC Gradia presents average results, and expresses a good color stability at the time of insertion in the cavity and after a year. Presents two failures at the time of insertion in the cavity and teeth devitali vital teeth

without any failure. After one year the percentage of coronary improper restoration lies around 30%.

Composite Filtek Z250 presents a number of 7 failures in this study, representing a rate of about 40%. Presents two failures at the time of insertion in the cavity devitali teeth and vital teeth failure. After one year their number increased from three to seven

Epidemiological research carried out on a sample of 62 direct coronal restoration with composite resin, acrylic color shows that stability is better when compared with the vital and devitalised teeth structure and texture, probably due to change of the latter.

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