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CHANGE OF AESTHETIC SCORE IN COMPOSITE RESINS RESTORATIONS OF ANTERIOR DENTAL GROUP : CLINICAL STUDY

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ABSTRACT:

The use of correct criteria for assessing direct restorations is of major importance in dental practice in the context of incorrect use or the use of invalid criteria may lead to erroneous repair / replacement decisions or over-treatment. **The purpose** of the study was to determine the aesthetic performance of composite resin restorations in relation to a number of clinical and biological variables (patient sex, age of restoration, type of cavity). **Material and method**: The study group consisted of 80 patients aged 16-44 years (male 35, 45-females). The evaluation of the restorations was performed in relation to the sex of the patients (male, female), the age of the restorations (1-2 years, 3-4 years) and the type of cavity (class III, class IV, class V). The evaluation was done through the aesthetic FDI criteria. **Results**: Our study did not aim to correlate surface changes and color changes with cariogenic risk or oral hygiene of patients, but this is a subject that can be addressed in later research. In our study, the comparison of clinical performance at different time intervals (1-2 years vs. 4-6 years) was relevant for observing the age of age in changes in aesthetic criteria under the condition that incorrect techniques of restoration, finishing and polishing or frequent consumption beverages with potential for degradation and coloring of the surface of composite resins can lead to failure in the first 12 months. **Conclusions**: The percentage of restorations in aesthetic composite resins (SE <4) is significantly higher for restorations 1-2 years old (94.30%) compared to restorations 3-4 years old (72.40%). Resurfacing from composite resins located in the IV class cavities is significantly affected by aesthetic score (47.00%) compared to restorations located in Class III cavities (12.00%) and Class V (13.40%) respectively.

Key words*: direct restorations, composite resin, aesthetic performance, aesthetic FDI criteria*

INTRODUCTION

Although they have been frequently used over the last 20 years, the improvement of adhesive restoration materials has led to a situation where the Ryge criteria can no longer be used successfully to detect early changes in the surface of direct coronary restorations (Hickel 2007).

Under these conditions, modified Ryge criteria have emerged, but they have led to the existence of literature data that can not be easily compared and interpreted. I

Given that, in studies using the modified Ryge criteria, we find increased alpha indices given to restorations older than 12 months of functioning in the oral cavity, it is obvious that the reduced sensitivity of the Ryge criteria is incorrectly associated with the absence changes and satisfactory clinical performance (Hickel 2007).

The FDI Scientific Committee recommends new assessment criteria for research groups focused on investigating the clinical performance of direct coronary restorations. These criteria, called FDI criteria, are aesthetic, functional, and biological criteria.

FDI criteria have the advantage of superior sensitivity, which allows objective and accurate results to be obtained, despite difficulties over the longer time span, less familiarity with these criteria, and inability to interpret the data provided by previous studies used in the evaluation of Ryge criteria (Hickel & col.2007).

FDI criteria allow the determination of the aesthetic qualities of composite resin

restorations by evaluating the aesthetic score obtained by summarizing the FDI scores (surface condition, edge coloring, surface coloring, color matching, anatomical shape).

AIM OF STUDY :

The purpose of the study was to determine the
aesthetic performance of composite resin restorations in relation to a number of clinical and biological variables (patient sex, age of restoration, type of cavity).

The objectives of the study were:- determination of aesthetic scores in relation to the investigated variables;-evaluation of the distribution of FDI indices in relation to the variables investigated:

- Surface status;
- marginal coloration;
- surface coloration;
- Concordance of color;
- Anatomical form.

MATERIAL AND METHODE:

The study group consisted of 80 patients aged 16-44 years (male 35, 45-females)
in 2012-2016. The inclusion criteria for patients were the presence of at least one medium-sized cavity lesion (ICDAS code 05) at the proximal or cervical vestibular surfaces of the frontal teeth, low or medium cariogenic risk. The restoration of carious lesions was performed with the Filtek Z250 (3M / ESPE) microfibre composite resin. A number of 125 carious lesions were treated in third, fourth or fifth cavities. At the end of the monitoring interval, 110 restorations were evaluated in 72 patients. The evaluation of the restorations was performed in relation to the sex of the patients (male, female), the age of the restorations (1-2 years, 3-4 years) and the type of cavity (class III, class IV, class V). In the Figures 1a-c are presented clinical aspects related to investigated parameters of the composite resins : surface status, marginal coloration, surface staining, color matching, anatomical shape (clinically excellent, satisfactory, or clinically unacceptable).

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Fig. 1a. - Resin composite restorations (Class III) 1.1.-2.1, 4 years old. Anatomical shape, surface status, surface staining -clinical unacceptable

Fig. 1b. - Composite resin restoration 2.1. (4 years). Marginal coloration, anatomical shape - clinically unacceptable

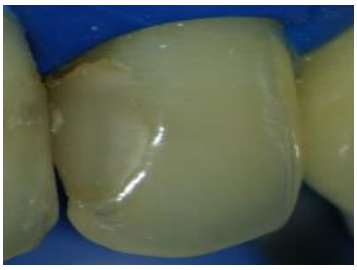


Fig. 1c. - Composite resin restoration 2.2. (4 years). Marginal coloration – unacceptable.

RESULTS

Results on the distribution of FDI criteria in relation to the sex of patients. Surface status results show that FDI <4 (clinically satisfactory and acceptable) indices are present at 79.10% of male patients' restorations, respectively 77.40% of female female restorations (Fig. 2)

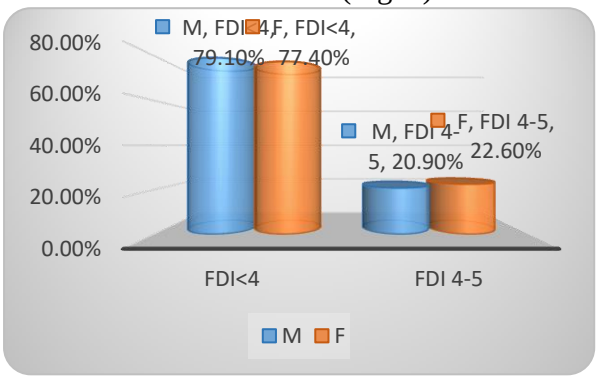
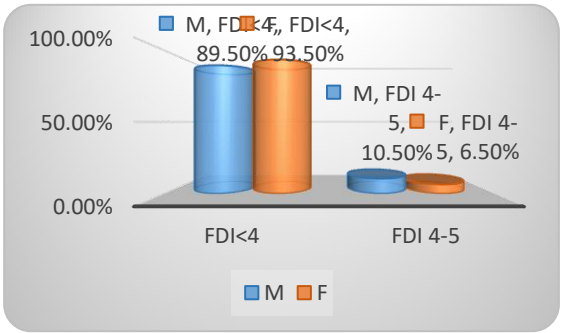


Figure 2. Aesthetic vs. Unaesthetic Restorations (surface status, male vs. female).

Color matching results show that FDI <4 (clinically satisfactory, acceptable) indices are present at 89.50% of male patients' restorations, respectively 93.50% of



female patients restorations (Fig. 3).

Figure 3. Aesthetic vs. Unaesthetic Restorations (color matching , male vs. female).

Anatomical form results show that FDI <4 (clinically satisfactory, acceptable) indices are present at 87.50% of male patients' restorations, respectively 90.30% of female patients restorations (Fig. 4).

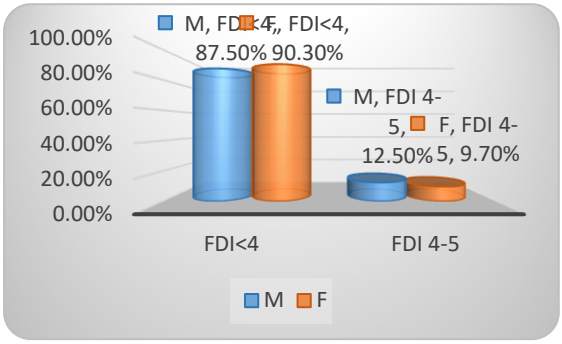


Figure 4. Aesthetic vs. Unaesthetic Restorations (anatomical form , male vs. female).

Surface status results show that FDI <4 (Clinically Satisfactory and Acceptable) are present at 90.40% of 1-2 years old restorations, and 82.75% of restorations 3-4 years old (Fig. 5).

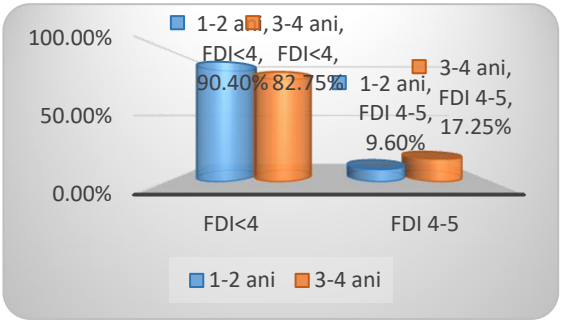


Figure 5. Aesthetic vs. Unaesthetic Restorations (surface status, 1-2 years vs. 3-4 years old).

The outcomes for marginal coloration show that FDI <4 (clinically satisfactory, acceptable) indices are present in 92.3% of the 1-2 year old restorations, respectively 72.4% of the restorations 3-4 years old (Fig. 6)

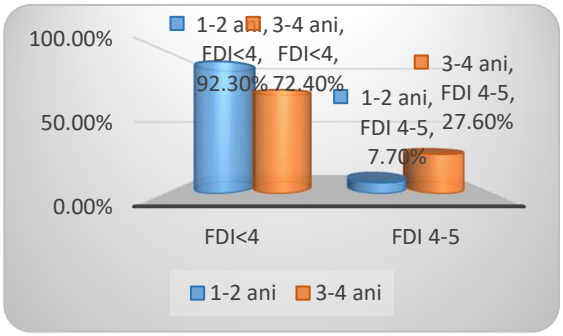


Figure 6. Aesthetic vs. Unaesthetic Restorations (marginal coloration, 1-2 years vs. 3-4 years old).

Surface staining results show that FDI <4 (clinically satisfactory, acceptable) indices are present at 94.20% of the 1-2 year old restorations, respectively 86.20% of the 3 to 4 year old restorations (Fig. 7).

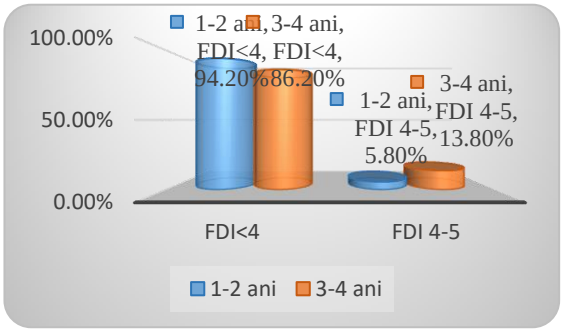


Figure 7. Aesthetic vs. Unaesthetic Restorations (surface staining, 1-2 years vs. 3-4 years old).

Anatomical form results show that FDI <4 (clinically satisfactory, acceptable) indices are present at 84.60% of the 1-2 years old restorations, respectively 79.30% of the restorations 3-4 years old (Fig. 8).

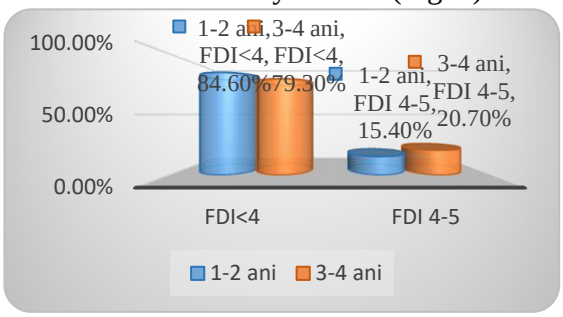


Figure 7. Aesthetic vs. Unaesthetic Restorations (anatomical form, 1-2 years vs. 3-4 years old).

DISCUSSION:

In our study, the comparison of clinical performance at different time intervals (1-2 years vs. 4-6 years) was relevant for observing the age of age in changes in aesthetic criteria under conditions where incorrect techniques of restoration, finishing and polishing or frequent consumption beverages with potential for degradation and coloring of the surface of composite resins can lead to failure in the first 12 months. After this interval, the percentage of composite resin restorations considered unacceptable is very low, and the changes, where they appear, are minor or moderate, the detection rate of which is

influenced by the dentist's experience. After 24 months of operation in the oral cavity, composite resin restorations may exhibit significant changes in poor oral conditions relative to the type of material, dental group, cavity type. The results were interpreted taking into account the average caryogenic risk of selected patients and supporting the literature on the clinical performance of aesthetic restorations in the previous dental group both in the short term (1-2 years) and in the medium term (3-4 years). Thus, in the case of investigations of medium-sized aesthetic restorations, there have been encountered current failures in the form of cracks or fractures, marginal staining, coloration of the restoration material, marginal fracture, rare fracture in the restoration mass. Studies on the clinical performance of aesthetic restorations directs the dentist to the survival rate at different time intervals in relation to both material and technique-related factors as well as clinical and biological factors that can influence repair decisions. replacement in clinical situations where failures occur. It is always preferable to make the decision for repair both from the point of view of the mental perception and comfort of patients and to discontinue the re-restoration cycles associated with high sacrifices of dental substance.

Smales et al. (1992) evaluated restorations of four types of composite resins applied at the level of anterior teeth (cavities of 3rd and 4th cavities) over a period of 5 years. The authors of the study found a failure rate of only 8%, mostly for restorations applied in fourth-grade cavities.

Mjor & col. notes over the past 20 years the reduction in replacements due to wear / degradation of composite resin restorations and an increase in fracture replacements in the restoration mass and marginal fractures associated with recurrent cavities or not. Color changes are the third reason for replacement after recurrent cavities and fractures in the restoration mass or marginal fractures. The average age of replacement was 6 years for composite resin restorations, superior to the average replacement age for glassionomere cement (3 years), but less than the average replacement age for amalgam restorations (9 years). Similar results on mean replacement age are presented in the study by Burke & col (1999). Tyas (2005) found that the mean age of replacement was 7.1 years for composite resin restorations, superior to the mean replacement age of Glassionomer cement restorations (5.7 years), but lower than the mean replacement age of amalgam restorations (13.6 years) . Burke & col. (1999) recurrent cavities (21.9%) and marginal fractures (6.1%) are the main reasons for replacing direct restorations.

CONCLUSION:

The aesthetic score of composite resin restorations is similar for both male and female.

The percentage of restorations from aesthetic composite resins (SE <4) is significantly higher for 1-2 years old restorations (92.30%) compared to 3-4 years old restorations (72.40%).

Acceptable surface status criteria are associated with 1-2 year old restorations (92.3%) compared to 3-4 years old restorations (72.4%).

Clinically satisfactory indexes for the surface staining criteria are detected especially in 1-2 year old restorations (94.20%) compared to 3 to 4 year old restorations (86.20%).

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