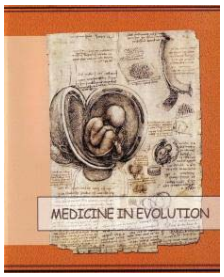
Incidence of carious pathology of the permanent primary molar



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Abstract

From a dental point of view, the man carries out his masticatory activity during all types of dentition: temporary, mixed and permanent. Temporary dentition fulfills multiple important roles for the period in which it is present in the oral cavity: biological, psycho-social, general somatic and psychic development of the child, conservation of space for the normal eruption of permanent teeth. Also, due to the exercise of the functions of the temporary teeth, a lot of stimuls are produced that lead to the modeling and development of the structures of the dento-maxillary apparatus.

Keywords: permanent primary molar, fillings, edentulousness.

INTRODUCTION

The aim of this study is to assess the treatment needs of permanent first molars in a group of subjects from the University of Medicine and Pharmacy "Victor Babeş" in Timişoara, Faculty of Dentistry, Pedodontics Discipline.

Dental caries is a condition with a multifactorial etiology that involves the interaction of the following factors: host, oral microflora, diet and a sufficiently long period in which the three previous factors coexist. For the formation of a caries it is necessary the interaction in time of all the factors, the destructive process is interrupted if one of these three factors disappears [1].

Retentive dental morphology and crowded dento-alveolar incongruence may contribute to patients' increased susceptibility to caries. The quality of the dental tissues as well as the low level of oral hygiene favor the appearance of caries. Among the general factors related to the host can be listed: host predisposition, age, sex, unfavorable socio-economic factors acting through cariogenic diets, reduced oral hygiene, reduced or absent fluoridation, lack of financial resources, and certain general diseases [2, 3].

During the mixed dentition, the young permanent teeth have a rugged occlusal relief, which favors the accumulation of plaque. In addition to the fact that the apical region of the root is not fully developed, the dental hard tissues are incompletely mineralized, more vulnerable to acid attacks. All these characteristics make them extremely susceptible to caries. That is why the use of prevention methods during this period, such as fluoridation, dental sealing, etc. they are extremely beneficial [4].

The permanent first molar is located in the lateral area of the arch and occupies the sixth position from the midline. Erupe around the age of 6, over a long period of time. From its submucosal stage to its eruption in the oral cavity and the establishment of occlusion ratios with antagonistic teeth, six months to a year pass. This period is devoid of functionality.

Its formation and mineralization take place, for the most part, in difficult moments of development. In the first year of life, imbalances frequently occur, which can cause disturbances in the mineralization of dental structures [5].

The posteruptive maturation of the enamel is done by: living on the arch with temporary teeth that are affected by carious lesions and have mobility, thus favoring food and bacterial plaque retention, disfavoring self-cleaning.

The eruption of the first molar represents a special morphological event, because by its appearance the distal limit of the canine-premolar corridor and the mesial limit of the molar corridor are established. It controls all dental movements in the occlusal field and is the only stable element during mixed dentition.

The first molars have a major importance in the further development of the dento-maxillary apparatus, a fact first observed by Angle who called them "the key to occlusion". The gearing mode of the upper first molar with the lower molar is used to classify certain abnormalities of the dento-maxillary apparatus [6,7].

On the occlusal surface of the pluriradicular teeth, at the level of the pits and dimples, coalescence defects can be observed which contribute to a much faster evolution of the caries process. The existence of wide dentinal canals will also lead to an increased dentinal permeability for both germs and materials used in sealing processes, respectively dental treatment. The large volume of the pulp chamber, the proximity of the pulpal horns to the cusps and an increased dentinal permeability lead to a rapid pulpal damage in the deep caries [8].

For this reason, pedodontists will use methods to preserve vitality, using the ability to defend the leg. Permanent first molars play several roles in the dento-maxillary apparatus and represent a key dental group within the dentition. Let's not forget that these teeth can also be the support of orthodontic devices that promote plaque retention [9,10,11].

Aim and objectives

Romania's socio-economic development is constantly growing. Although at the national level there are only a few pilot prevention educational programs, initiated by prevention teams within the Faculty of Dentistry and some associations of private clubs, and on the dental market are present professional dental hygiene products, tooth decay in children it has grown a lot lately. According to studies, it has been shown that cariogenic activity has three developmental trends (group with intense carious activity about 17.3% of the population, group with average carious activity about 55.7% of the population, group with average carious activity about 25% of the population). These become evident during the period of mixed dentition at 6-7 years and remain in the same proportions until 13-14 years.

The aim of this study is to evaluate the optimal methods of treatment performed on the permanent first molars, erupted in the oral cavity in different stages of root development and with a different degree of dental damage. The text included in the sections or subsections must begin one line after the section or subsection title. Do not use hard tabs and limit the use of hard returns to one return at the end of a paragraph. Please, do not number manually the sections and subsections; the template will do it automatically.

MATERIALS AND METHODS

This study was conducted on a group of 697 randomly selected subjects: 318 are female and 379 male, 385 are from rural areas and 312 are from urban areas.

The group was divided into 3 age groups. The first group consists of 241 subjects aged 6-8 years (34.6%), the second group consists of 296 subjects aged 9-11 years (42.5%), and the third group is consisting of 160 subjects aged 12-14 years (23%).

The inclusion criteria for the study were:

- Subjects who presented the first permanent molar completely erupted
- Subjects from urban and rural areas
- Subjects aged between 6 and 14 years
- Subjects who required dental treatments at the level of the permanent first molar

Exclusion criteria for the study included:

- Subjects who do not have a fully erupted permanent first molar
- Subjects who do not have a permanent primary molar due to early loss
- Subjects under the age of 6 to 14 years
- Subjects who did not agree with the proposed treatment plan

The legal representatives of the subjects completed the patient's consent and the medical questionnaire. They were also informed that the answers provided by them will be used in a study, and all personal data are protected by signing the GDPR.

The anamnesis included personal data (age, origin), personal pathological history, dental history, information on current suffering. All these were recorded in the patient's file.

The clinical examination of the patients was performed both exobuccally and endobuccally with specific instruments or with the help of the Diagnodent. All information was recorded in the patient's file. Subjects who subsequently required complex dental treatment performed a complementary examination - dental radiography.

Before starting the dental treatments, the subjects underwent professional tooth brushing, using a professional paste that does not contain fluorides or oily constituents in order not to diminish the adhesion of the restoration materials.

For dental seals the following protocol was used: professional toothbrushing, saliva and roller insulation, acid gravel (1 minute), water jet washing for 30 seconds, air drying, sealant application, light curing of the material. sealing with the light curing lamp (30 seconds), checking the sealing with the help of the articulation paper.

The following protocol was used for dental fillings: professional toothbrushing, dam insulation, selective acid etching (15 dentin -30 seconds enamel), water jet washing for 30 seconds, air drying, adhesive application and light curing (30 seconds). seconds), application and modeling of RDC, polymerization of RDC material with light curing lamp (20 seconds), verification of the filling with the help of articulation paper, finishing, polishing.

Subjects who required endodontic treatment, tooth extraction, orthodontic treatment at the level of permanent first molars were referred to doctors specializing in endodontics, dento-alveolar surgery and orthodontics.

The collected data were statistically analyzed using the Chi2 test.

RESULTS

A total of over 96% of the subjects required dental treatment at the level of permanent first molars. The operations consisted of sealing, preventive fillings, fillings, endodontic treatment, dental crowns, dental extractions and orthodontic treatments.

Of the 697 subjects examined: 97 dental units required sealing of the first permanent molars, 141 dental units required preventive fillings, 317 dental units required fillings, 248 dental units required endodontic treatments, 72 dental units had indication for prosthetic restoration, 108 dental units required extractions, 96 dental units required orthodontic treatment.

Subjects from rural areas had a higher degree of carious lesions (55.2%) than patients from urban areas (44.8%).

Following the analysis of the data collected with the help of the Chi2 test, the following conclusions were reached.

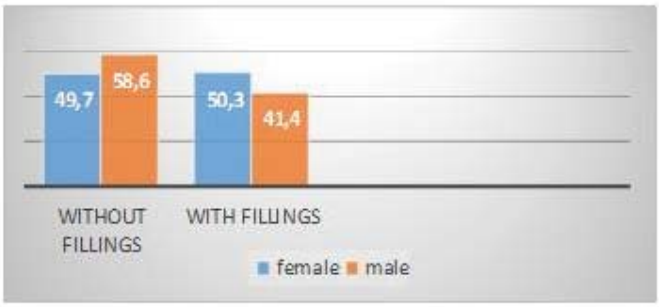

Figure 1. Proportion of subjects with fillings

The proportion of subjects who have fillings is significantly increased among females (Chi2 test, p = 0.019).

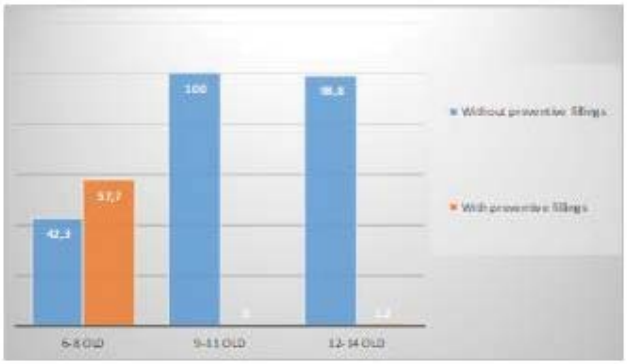

Figure 2. Proportion of subjects with preventive fillings

The proportion of subjects who have preventive fillings is significantly increased among those in the 6-8 years category (Chi2 test, p<0.001).

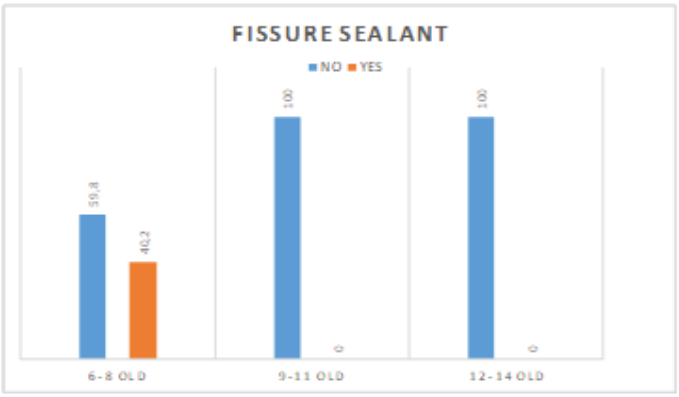

Figure 3. Proportion of subjects with fissure sealant

The proportion of subjects who have seals is significantly increased among patients in the 6-8 years category (Chi2 test, p <0.001).

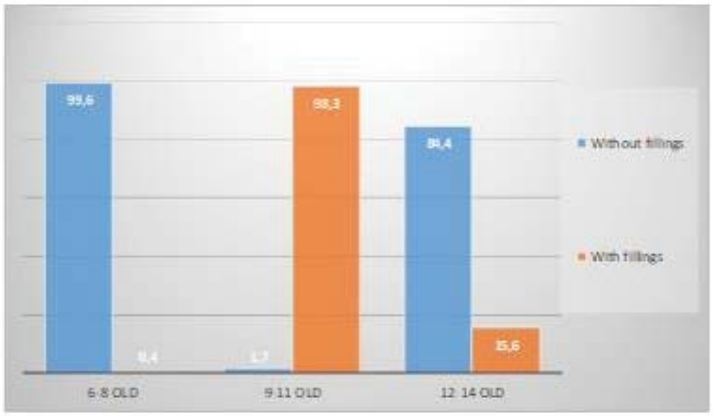

Figure 4. Proportion of subjects with fillings

The proportion of subjects who have fillings is significantly increased among those in the 9-11 years category (Chi2 test, p<0.001)

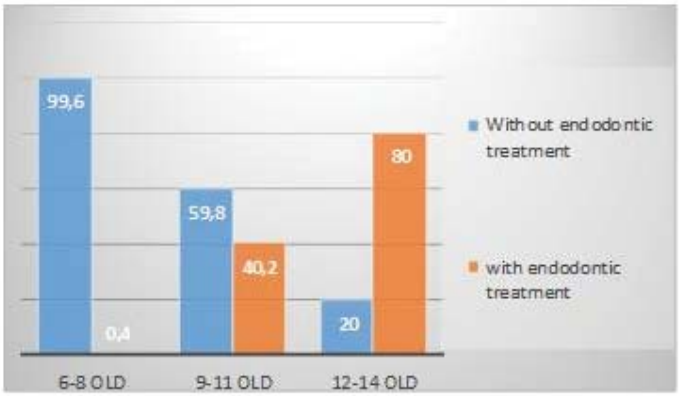

Figure 5. Proportion of subjects with endodontic treatment

The proportion of subjects who have endodontic treatments is significantly increased among those in the 12-14 years category (Chi2 test, p<0.001)

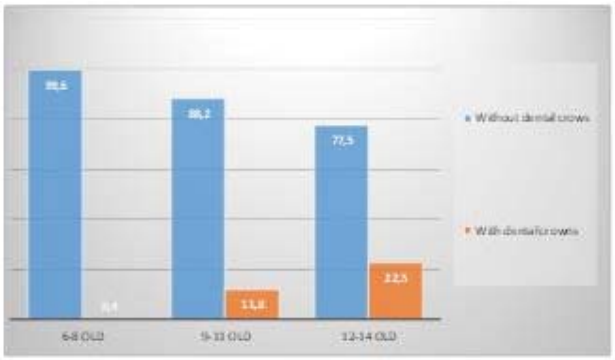

Figure 6. Proportion of subjects with dental crown

The proportion of subjects who have dental crowns is significantly increased among those in the 12-14 years category (Chi2 test, p<0.001)

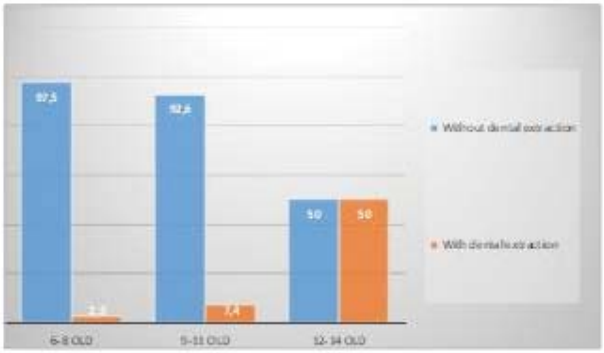

Figure 7. Proportion of subjects with tooth extraction

The proportion of subjects who have tooth extractions is significantly increased among those in the 12-14 years category (p<0.001)

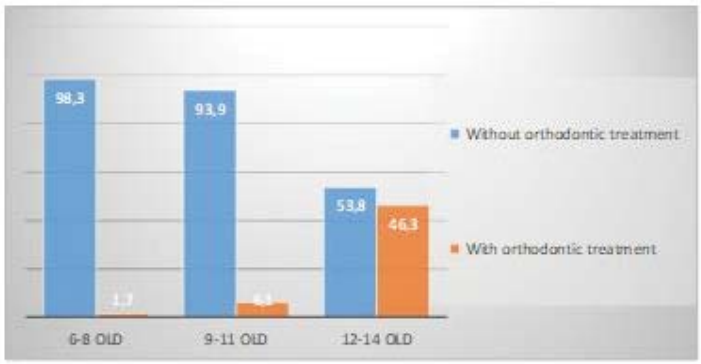

Figure 8. Proportion of subjects with orthodontic treatment

The proportion of patients who have orthodontic treatments is significantly increased among those in the 12-14 years category (p<0.001)

CONCLUSIONS

Due to the accentuated morphology at the level of the grooves and dimples at the level of the permanent first molar, the diagnosis of caries is difficult to make by direct examination. It is also difficult to specify the rate of progression of the lesion.

That's why patients with murmurs need regular checkups. The interval between controls is established according to several criteria (age, its cooperation for a proper brushing, as well as for the compliance of dental treatments, lesions present / absent in other dental units, high carioactivity in temporary dentition is likely to provide a susceptibility high permanent tooth decay, frequent sugar intake).

The need for dental treatments was due to the increased incidence of caries in the permanent first molars. Any combination would have the level of oral bacteria, oral hygiene habits, diet, the use of flowers or salivary contents and if they protected them from caries, it is not certain that it would protect them in the future. If pathogens or caries protectors change significantly, they may become susceptible to these conditions.

The management strategy proposed for the patients in this study is to maintain the balance in favor of protective factors and to be aware of the possibility of changing the risk of caries over time.

Periodically, at each control session, it is necessary to re-evaluate the caries risk due to a possible change in oral hygiene, bacterial levels, diet, salivary flow, use of flowers.

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