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CARIES IN CHILDREN AND ADOLESCENTS: CAUSES, CLASSIFICATION, PREVENTION AND TREATMENT

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ABSTRACT

This paper focuses on understanding the causes of dental caries in children , and also shows the importance of timely treatment and prevention and treatment of caries . Particular attention is paid to the influence of oral hygiene and nutrition. The material is aimed at informing and raising awareness among parents and health workers.

Keywords: Caries, caries treatment, prevention, hygiene, caries in children, oral hygiene, caries classification

Introduction

Dental caries (caries) dentis) is a pathological process that occurs after teething, accompanied by demineralization of hard dental tissues with subsequent formation of defects in the form of a cavity. The impact of a complex of unfavorable exogenous and endogenous factors (past diseases, especially infectious ones, nutritional disorders, prolonged stress, industrial intoxication, unfavorable climatic, geographical and geochemical conditions) causes suppression of the body's immune system, which causes the development of an immunodeficiency state in the oral cavity and contributes to the occurrence of caries [1, 2, 7].

Immunodeficiency in the oral cavity increases the formation of dental plaque, localized in the area of the tooth neck or on its entire surface. The formation of dental plaque is significantly affected by the anatomical structure of the tooth and its surface structure, diet, composition of saliva and gingival fluid, the presence of fillings and dentures, but above all , microorganisms of the oral cavity with the progression of caries are disrupted remineralizing, buffering, bactericidal and other properties of saliva. Secretion of saliva decreases, the content of secretory IgA in it decreases sharply , a decrease in the activity of lysozyme and B-lysines, an increase in the activity of acid and alkaline phosphatase and the content of lactic acid are noted.

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Causes of caries

One of the key factors influencing the development of caries is considered to be physiological hypmineralization of hard dental tissues. Also, children's tooth enamel is thinner and less mineralized compared to adults and because of this it becomes more susceptible to the effects of acids. In addition, children often consume sweet foods and drinks that promote the proliferation of bacteria. Chocolate, marmalade, candy, carbonated drinks create a good environment for the proliferation of bacteria such as Streptococcus mutans which cause caries [3,5].
Poor hygiene . If a child does not brush his teeth regularly and most importantly correctly, food debris gets stuck in the teeth, which causes caries.
Genetic predisposition to caries in children is due to the high level of metabolism in the body. Hereditary weakness of enamel, as well as a small amount of saliva, increase the risk of caries

Symptoms of caries

At the initial stage of caries, patients complain of a feeling of soreness to aspic and chemical irritants (sour sweet); the tooth does not react; upon examination, an area of enamel demineralization is revealed in the form of a change in the normal color of the tooth and the appearance of matte white, light brown, dark cinnamon spots and even spots with a black tint.
The process begins with loss of enamel gloss in a limited area. This usually occurs in the cervical region. The area of the lesion is initially small, but gradually increases and can cover a significant area of the cervical region [6].
The consequences of complications of caries in children can have serious consequences.
1. Aesthetic problems that affect the child’s self-esteem.
2. Pulpitis: inflammation of the dental pulp (nerve-vascular bundle) accompanied by severe pain often occurs when treatment of deep caries is ignored.
3. Periodontitis: Inflammation of the tissues around the root of the tooth, which can lead to the formation of cysts and tooth loss.
4. Violation of bite formation.

Classification of caries

In 1896, a significant event occurred in dentistry that influenced the development of this field: scientist Green Black proposed a system for classifying caries. His work was based on dividing carious cavities into five separate classes. The main

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goal of this innovation was to simplify and standardize the methods of filling teeth when treating caries.

Thanks to Black's classification, dentists were able to accurately determine the type of caries in a patient and choose the optimal technique for preparation and filling. This significantly simplified the process of dental treatment. Over time, Black continued his research, refining and expanding the classification of carious cavities [1,3,7].

Black's classification of carious cavities

The currently used classification of carious cavities, proposed by Green Black, originally had five classes. Later, a sixth class was added.

Black's caries classes

Class I - cavities localized in the area of fissures and natural depressions of incisors, canines, molars and primolars.

Class II - cavities located on the contact surface of molars and primorlars.

Class III - cavities located on the contact surface of the incisors without damaging the cutting edge.

Class IV - cavities located on the contact surface of incisors and canines with a violation of the angle of the crown of the tooth and its cutting edge. Class V - cavities located in the cervical region of all groups of teeth. Class VI - cavities located on the tubercles of molars and premolars and the cutting edges of incisors and canines.

Treatment

I. At any stage of caries, it is necessary to remove damaged tissue and thoroughly treat the tooth cavity. After disinfection, filling is performed using durable composite materials. Another treatment method is the installation of a special inlay in the tooth cavity , made of ceramics or metal. The inlay is created individually based on a plaster impression, so it ideally fills the resulting void. Inlays are a more reliable way to protect against the recurrence of caries. They are durable and hypoallergenic.

II. Molars and premolars, which play a major role in chewing food, are often susceptible to caries. This is especially true for the interdental spaces, where food debris accumulates. Treatment of caries between the lateral surfaces of chewing teeth includes the following stages:

INNOVATIVE TECHNOLOGICA
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1. Pain relief. The method of anesthesia is selected depending on the depth of the lesion: for superficial caries, application anesthesia is used, and for deep caries, injection anesthesia or general anesthesia is used.
2. Cleaning the tooth . As with the treatment of the front teeth, the affected areas are cleaned of plaque and tartar, after which the working area is isolated with a rubber dam.
3. Preparation . Carious cavities are treated with a drill. In this case, some healthy tissue is sometimes removed to provide access to the affected areas.
4. Disinfection . The cavities are treated with antiseptic solutions, and then an adhesive composition is applied to ensure reliable adhesion of the filling to the tooth tissue.
5. Filling . Composite materials are used to fill interdental spaces. Restoration of the side walls and tight contact between teeth is carried out using matrices and special wedges.
6. Polishing . After the filling is installed, the surfaces are carefully polished to restore the anatomical shape of the tooth and ensure comfort when chewing.
III. Treatment of caries on the lateral surfaces of the front teeth should be started as early as possible in order to limit the restoration of enamel, which is only possible at the stain stage.
If the damage affects deeper layers, the following algorithm is used:
1. An anesthetic is applied to the affected area.
2. Clean the tooth surfaces from plaque and deposits to prevent the spread of caries to adjacent areas.
3. To isolate the oral cavity and protect the treatment area from moisture, use a cofferdam - a special latex napkin.
4. Carious cavities are prepared using a drill. To avoid tissue overheating, the working area is periodically cooled.
5. To disinfect the interdental surfaces, a chlorhexidine solution is applied, and for better adhesion of the filling to the dental tissue, an adhesive composition is used.
6. Install the seal, after which the contact surfaces are ground, restoring natural contours of teeth.

PREVENTION

The main measures for preventing caries include:
- regular oral care;
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ISSN: 2776-0987 Volume 5, Issue 12, December - 2024

- use of fluoride-containing toothpastes;
- use of toothpastes with chlorhexidine;
- use of chewing gum with xylitol at least three times a day after meals;
- limiting sugar consumption;
- correction of dental anomalies (for example, crowding of teeth);
- gum correction if necessary;
- preventive visits to the dentist at least once every six months;
- professional oral hygiene, which is mandatory for all patients, regardless of the condition of their teeth and the level of dental diseases.

Conclusion

Timely treatment, proper prevention and oral hygiene care will help keep your teeth healthy and beautiful. Regular visits to the dentist and attention to nutrition are key steps on the path to a healthy smile.

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