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APPLICATION OF ANTISEPTIC AND OSTEOPLASTIC DRUG FOR DESTRUCTIVE PERIODONTITIS TREATMENT

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ABSTRACT

Introduction: Treatment of destructive forms of chronic periodontitis is extremely topical. Its relevance is associated with the features of treatment, which depends on the stage of the exacerbation process. The issue of the problem is also in the fact that the destructive seat of periodontitis is a source of chronic infection.

The aim: The task of the research was to evaluate the conservative treatment of chronic destructive forms of periodontitis with a dental kit "Cupratin", developed for professional usage in dental practice.

Materials and methods: "Cupratin" is a complex medicament based on suspensions of calcium hydroxide, copper-calcium hydroxide and powder, which contains hydroxide aluminosilicate and calcium sulphate, radiopaque filler. It has bactericidal and osteoplastic effect. The treatment involved 44 patients (44 teeth) in the age group of 37 to 50 years suffering from chronic granulating periodontitis without concomitant diseases.

Patients were divided into two groups: investigated and control. In the main group of patients, a suspension on the basis of copper-calcium was used for treatment (root canals were filled with "Cupratin" as a temporary filling material). Obturation of canals was preceded by chemical and mechanical treatment.

The medical material was in direct contact with periodontal tissues for 20-55 days.

Intraoral X-ray radiography was taken from the patients within the intervals of 3 and 6 months.

Results and conclusions: Positive results were obtained, which were characterized by the disappearance of subjective symptoms, intensive bone tissue reconstruction in the site of destruction and a decrease in the size of the destruction respectively.

KEY WORDS: Chronic destructive periodontitis, temporal obturation, osseous regeneration, bone mineralization

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INTRODUCTION

Treatment of destructive forms of chronic periodontitis is extremely topical. Its actuality is associated with the features of treatment, which depends on the stage of the exacerbation of the process. The issue of the problem lies also in the fact that the destructive locus of periodontitis is a source of chronic infection [1, 2].

Among all diseases of the maxillofacial area, the number of chronic periodontitis varies from 15 to 30% according to various authors, [1, 7, 11]. In the last decade the number of patients with chronic inflammatory diseases of the maxillofacial area did not reduced despite the significant improvement in the quality of dental care.

Inflammatory locus in chronic periodontitis on the background of normal reactivity of the organism represents a protective reaction of the organism. Besides, the long-term existence of the focal point of chronic infection leads to a decrease in the level of nonspecific resistance of the organism during the violation of the functions of the immune system. As a result, this process leads to the development of complications [3, 9, 10].

The above-mentioned reasons explain the socio-medical significance of the problem of chronic periodontitis and the importance of the following research for new effective methods of its treatment [2, 4].

THE AIM

Our aim was to improve the quality of chronic forms of periodontitis treatment in multi-root teeth during the remission stage by applying modern methods of antiseptic treatment, obturation of root canals in accordance with generally accepted requirements and activation of regenerative processes in the area of destruction of periapical tissues.

MATERIALS AND METHODS

For the treatment of chronic granulating periodontitis a dental kit "Cupratin" was used for filling the root canals. Dental Kit "Cupratin" with a complex preparation, consists of:

- Suspension №1 based on calcium hydroxide;
- Suspension №2 based on copper-calcium hydroxide;
- Powder containing hydroxide, aluminosilicate and calcium sulfate, X-ray diffuser and technological additives.

Dental Kit "Cupratin" is a bactericidal system with highly active hydroxocuprat. High alkaline medium of suspensions (pH = 12-12,5) and high content of hydroxide and calcium oxide provides sterility and stimulates the formation of bone tissue.

Suspension №1 is a calcium hydroxide with distilled water. Calcium hydroxide stimulates the formation of mineralized tissue. The bactericidal action of highly dispersed

calcium hydroxide can be explained by alkaline proteolysis and saponification of proteins of organisms.

Suspension №2 is an equilibrated system of copper-calcium hydroxide with hydroxocuprat in water surrounding. The antibacterial activity of copper ions is much higher comparing to calcium hydroxide. The concentration of copper ions in the suspension is 2,0-3,0%.

44 patients of male and female sex from 37 to 50 years old without concomitant pathologies were examined. In 20 molars of the upper jaw and 24 molars of the mandible chronic granulating periodontitis at the remission stage without the presence of fistula was diagnosed.

All patients were examined according to the traditional schema. Additionally, an X-ray diagnosis of teeth was performed prior to treatment, immediately after treatment and in 3- and 6-months term with the dynamic monitoring.

Patients were divided into 2 groups depending on the treatment method used. Patients in the main group (24 persons) received a treatment method using the dental kit "Cupratin" and patients of the control group (20 people) used calcium-containing preparation "Calcisole-C".

For the treatment of periodontitis a traditional method of chemical and mechanical preparation was used. During the manipulation a system of nickel-titanium tools "Protaper" [5, 6] was used.

In the main group irrigation of root canals was performed with 3% solution of sodium hypochloride and 40% citric acid solution. A suslpension of calcium copper (№ 2) was also used. When processing canals with a suspension of copper-calcium hydroxide, hydroxocuprate ions are converted into a low-soluble copper hydroxide, which provides prolonged bactericidal, sterility and sealing of the canal and the apical part.

After medical treatment of infected canals they were obturated with paste which contained the powder with a suspension of calcium hydroxide (№ 1).

In the control group, the medical treatment of root canals was performed using 3% solution of sodium hypochloride and 40% solution of citric acid and temporary sealing of the root canals with "Calcisole-C".

After 6 months the root canals of teeth with chronic granulating periodontitis of both groups were obturated by cold lateral condensation gutta-percha method with the usage of "Viedent" siller (by Vladmiva).

RESULTS AND DISCUSSION

We considered the area of the defeat decreased by 1/3 or more from the size of the previous center as a positive

Table I. Camparison of treatment efficiency indicators for patients of the main and groups

Groups	Results			
	3 months		6 months	
	Reduction of the lesion area	% person	Reduction of the lesion area	% person
Main (n = 24)	1/2	92,0 ± 1,2	2/3	95,0 ± 1,3
Control (n = 20)	1/3	25,0 ± 0,7*	1/2	73 ± 1,2**

Note * p <0,001 - the reliability of the difference between the indicators of the main and control groups.
** p <0,05 - the reliability of the difference between the indicators of the main and control groups.

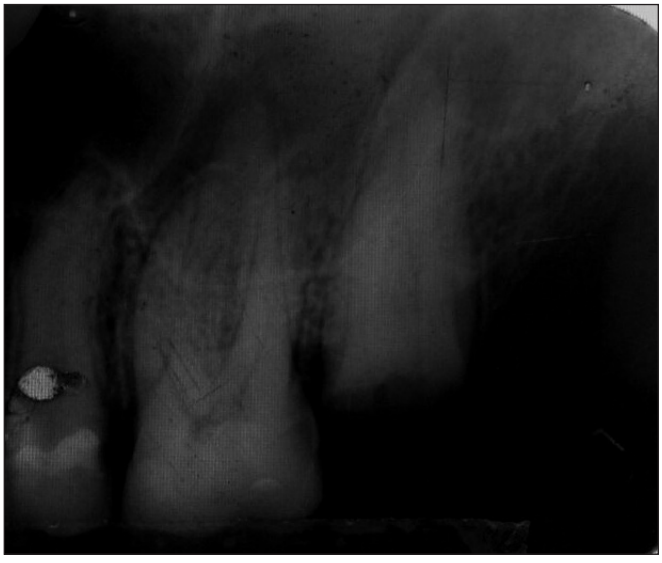

Fig. 1. Tooth 26 before treatment (control group).

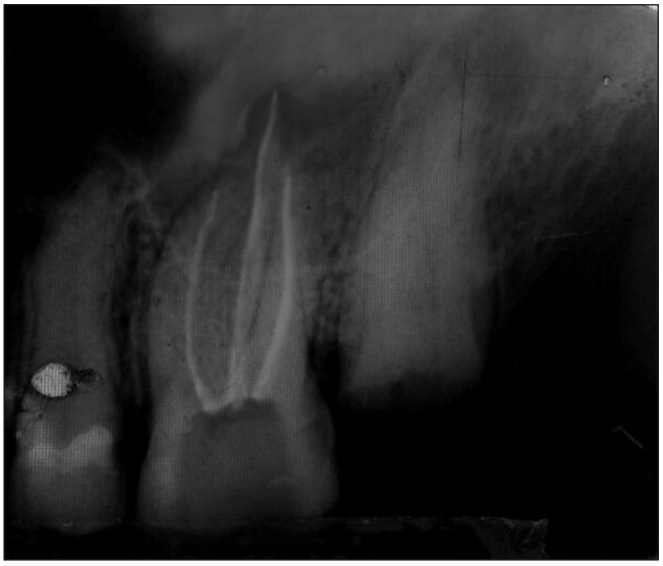

Fig. 2. Tooth 26 after treatment (control group).

Fig. 3. Tooth 46 before treatment (main group).

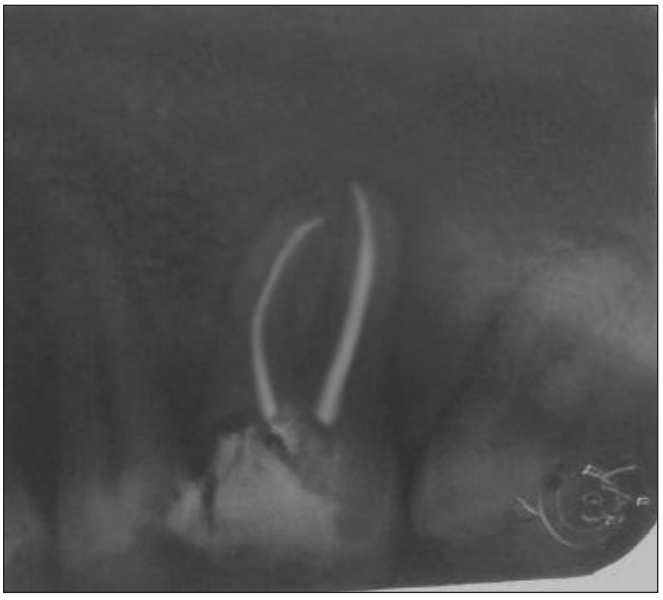

Fig. 4. Tooth 46 after treatment (main group).

result of treatment. The condition of pathologically altered bone tissue after treatment was evaluated according to the following parameters: size, contours, shadow intensity [3, 8]. During the observation period the patients showed positive dynamics.

After 3 months the destruction spot in periapical tissues decreased by 1/2 in 92% ± 1,2 cases in the researched group of patients.

In the control group, the inflammation spot decreased by 1/3 in 25% ± 0.7 cases (Fig. 1, 2). Border of bone tissue destruction became narrower. Pathologically modified bone tissue was replaced by a fibrous tissue, that affected in the change of intensity of the shadow. The periodontal crack decreased in the upper third of the root.

During the examination of patients in the researched and control groups the mucous membrane in the region of the projection of the top of the root did not have pathological changes, palpation was painless. Percussion of teeth was painless in patients of the researched group. In several cases a sensitive percussion of teeth was observed in patients in the control group.

After 6 months of treatment the destruction of bone tissue of patients in the main group decreased by 2/3 in 95% ± 1.3 cases (Fig. 3, 4).

In the control group positive dynamics was also noted. However, the percentage of positive results was lower. Regeneration of the periapical lesion was 73% ± 1.2 cases.

Complains in both groups of patient were absent. Objectively: mucous membrane without pathological changes, palpation was painless, painless percussion of teeth in all patients. Regional lymphatic nodes are not increased with palpation.

The obtained results allow us to recommend the usage of the complex preparation of "Cupratin" for faster and complete reduction of the periapical lesion for the treatment of chronic granulating periodontitis with destruction of bone tissue up to 0,6 cm.

CONCLUSIONS

Thus, the research results of the treatment of chronic granulating periodontitis in patients of the researched group, where "Cupratin" was used was indicated its high clinical efficacy.

Patients treated only with "Apex-Dent" the regeneration process was significantly slower.

Consequently, usage of "Cupratin" enables to accelerate the process of regeneration in osseous tissues in the locus of periapical inflammation during the conservative treatment of chronic granulating periodontitis more effectively.

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