



PERMEABILITY STUDY OF HARD TISSUE FOR DIFFERENT TOOTH ANTISEPTICS ON THE STAGE OF DRUG TREATMENT DURING ENDODONTIC PREPARATION OF ROOT CANAL

Sodikov Bothirali Asadullo ugli

Master 2 Courses, Departments of Pediatric Therapeutic Dentistry, Andijan State Medical Institute, Andijan city

ABSTRACT

The problem of antiseptic processing root canal during endodontics for the treatment of periodontal disease is dealt with in the article. Perfusion activity of various antiseptics (hypochloran , chlorhexidine, dimephosphon) is studied, their comparative analysis is performed. According to the result dentin is the most permeable to dimephosphon and hypochlorana , the least - for chlorhexidine. The author remarks the unevenness of dentin permeability in the mesial distal and vestibular oral direction.

KEYWORDS: *antiseptics, endodontology, permeability, dentine, parodont .*

INTRODUCTION

The basis of modern drug treatment of inflammatory periodontal diseases is the use of antibacterial drugs, in particular local usage antiseptics [5,10]. Neither one endodontic intervention is not complete without antiseptic treatment of the root canal [2]. Unfortunately, dentists use only 1-2 types of antiseptics. The most commonly used is chlorhexidine [3,9]. However, at the present stage of development of pharmacology, the group of antiseptic agents is widely represented. There are many agents that can be used for drug treatment of root canals: hypochloran , miramistin and others.

The problem of periodontal disease remains one of the leading ones in modern dentistry and general medicine [8]. In the structure of periodontal diseases, periodontitis is the most common and severe. According to epidemiological studies, this disease affects from 64% to 98% of the population of our country, being one of the main causes of tooth loss [7].

Currently, the importance of microbial and immune mechanisms in the development of periodontitis is most justified [5].

The current level of scientific knowledge about the etiopathogenesis of periodontitis determines the periodontal microflora as the dominant factor. Associations of opportunistic and pathogenic bacteria, developing in the periodontal pocket, contribute to the destruction of the periodontal apparatus and resorption of the alveolar bone.

Colonization of the gingival sulcus by a number of opportunistic and pathogenic bacteria greatly increases the likelihood of not only local pathological changes, but also serves as the cause of the formation of various somatic

diseases [4]. Despite the obvious relevance, the problem of the spread of infection in periodontal diseases and under the conditions of the applied therapy remains insufficiently studied. Even less is known about the selection of methods for effectively influencing oral bacteria that are part of biofilms. Thus, the prevention of the spread of infection and the fight against colonization by bacteria that can cause periodontal disease remains extremely relevant.

In modern dentistry, the treatment of inflammatory periodontal diseases is carried out using therapeutic, surgical and physiotherapeutic methods, but their diversity does not always allow a positive result to be achieved, which, in turn, necessitates the development and improvement of new methods of treating this pathology [1,3].

THE PURPOSE OF THE STUDY was to evaluate the perfusion activity of various antiseptics through the hard tissues of the tooth at the stage of drug treatment of the root canal of the tooth in the treatment of periodontal diseases.

MATERIALS AND METHODS RESEARCH

To achieve this goal, the upper central incisors were selected with a diagnosis of chronic apical periodontitis (ICD 10-K04.5). The root canals of all freshly extracted teeth were treated according to the rules of the Step technique. Back and divided into 4 groups for further work. The control group was treated with 0.9% sodium chloride solution, the second - Dimephosphone , the third - Chlorhexidine , the fourth - Hypochloran . Everything The teeth were hermetically sealed with a composite material of light polymerization (Ionoseel). In the future, the possibility of penetration of antiseptics beyond the tooth was determined (according to the method of



Artyunov S.D. 2006 G.), and degree penetration antiseptics v within solid tooth tissues (method of introducing antiseptics together with a dye).

RESULTS RESEARCH AND THEIR DISCUSSION

It was experimentally revealed that not a single substance penetrated the limits of the hard tissues of the tooth. The degree of penetration of antiseptics within the hard tissues of the tooth varies significantly. More pronounced dentine permeability was noted for two preparations: Dimephosphone

solution and Hypochloran solution . These preparations were 1.2 times higher than that of sodium chloride solution. The lowest permeability was found for Chlorhexidine solution , which was 0.9 times that of the control group. As a result of the experiment, uneven dentin permeability for all studied preparations was revealed: 1.3 times more in the mesiodistal direction compared to the vestibulo -oral direction, which may be due to the peculiarities of the dentin structure (different density of the dentinal tubules) (Table and Fig.) .

Table 1
Perfusion activity of antiseptics in relation to dentin, %

Antiseptic	Mesio - Distal Direction	Vestibulo-Oral Direction	The Average
Solution chloride sodium	53.3625	37.7625	45.5625
Hypochloran	64.275	47.475	55.875
Dimephosphone	65.3625	46.975	56.16875
Chlorhexidine	47.61667	40.257143	43.936905

CONCLUSIONS

1. The studied antiseptics do not have sufficient perfusion activity to penetrate beyond the limits of the hard tissues of the tooth.
2. The highest degree of penetration into the dentin was found in Dimephosphone and Hypochloran .
3. Solution Chlorhexidine marked how least aggressive a drug.
4. The permeability of dentin is uneven in different directions from the root canal: in the mesio- distal direction it is greater than in the vestibulo -oral direction.

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