

Conclusion

Research results allow to advise mentioned above method and model of traumatic osteomyelitis formation of mandible for application in experimental studying of different methods and ways effectiveness for treatment and rehabilitation procedures of that pathology.

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CARIES DISEASES PREVENTION BY LASER ACUPUNCTURE NEEDLE

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While many years dental caries stays one of the general problem of stomatology [1,3,4,7,8,9]. Elaboration of new modes and methods of its prophylaxis and treatment is a global task for the specialists of the world. Caries is provoked by different local and total factors. That is why it is practically evident prophylactic treatment of this disease should be complex and applied procedures should have many-sided mechanisms of acting which could level func-

tioning balance of parasympathetic and sympathetic nervous systems, return to normal organism homeostasis and oral cavity indexes providing optimal correlation of dental enamel dynamic balance - oral fluid. One of the most effectives methods corresponding to the mentioned requirements is reflexotherapy.

Aim of this research

is to analyze and appreciate caries prophylactic effects by laser acupuncture needle on the base of clinical tests.

Materials and methods

In our experiment 253 persons 15 - 25 years old were involved. They were divided into two groups. Caries, teeth stopping, extracted teeth index was equal to zero for the patients of the 1-st group composed of 27 persons. It was group of control. Acupuncture stimulation was performed by laser acupuncture needle (patent No 924) for the patients of the 2-nd group composed of 185 persons. No additional prophylactic treatment was applied for them. Every group was divided into three subgroups according to the caries intensity level (CIL): A - low CIL, B - middle CIL, C - high CIL.

For laser acupuncture stimulation the following classic meridians situated in the maxillofacial area were chosen: GJ, E, IG, VB. To produce an acupuncture effects total and local acupuncture points (AP) of above-mentioned meridians situated on the face, frontal part of neck in the region of skin projection of salivary glands and nerves responsible for AP innervation were used [2, 6]. The course of laser acupuncture treatment included 10 sessions with daily or in a day exposure was applied. Indexes of caries increasing and caries increasing reduction, data of structure and functional resistance of enamel (SFRE) by V.R.Okushko, L.I.Kosareva, I.K.Luckaya (1982) [5] method were used to appreciate caries prophylactic effects. Those indexes were examined four times for the patients of 1-st and 2-nd groups. First examination was performed when patient saw the doctor for the first time; second examination - in a month after the first visit to the doctor (for the patients of the 1-st group) and in a month after laser acupuncture stimulation course (for the patients of 2-nd group); 3-rd and 4-th examinations had place one and two years later correspondingly.

Results

Detailed results analyses confirmed that increased SFRE index of the 1-st group patients was for certain higher than control level ($p < 0,001$) while the hole period of examination. Regarding to the initial indexes authentic results increasing was fixed in subgroup A while 7-th examination ($p < 0,01$), in subgroup B - while 3-rd examination ($p < 0,05$), in subgroup C - while 4-th examination ($p < 0,001$). At the 2-nd group SFRE index in subgroup A had not authentic difference from control level beginning from the second examination. It means SFRE index reached the level of the norm. In subgroup B the same result was fixed beginning from the 3-rd examination. In subgroup C authentic difference with control indexes was marked ($p < 0,001$; $p < 0,01$; $p < 0,02$; $p < 0,01$) correspondingly to the numbers of examinations.

Difference from results of initial indexes were marked in all of subgroups while examinations.

It is necessary to say caries process increasing was progressively reducing in the 2-nd group while all of examina-

tions in all subgroups. In subgroup A this index composed 92,89% while the 2-nd examination, 81,36% - while 3-rd examination, 68,06% - while 4-th examination; in subgroup B it is 116,50%, 87,37%, 73,96%; in subgroup C - 84,95%, 80,86%, 77,99% correspondingly.

Reduction of caries increasing in subgroups A and B composed 31,94% and 26,04% correspondingly.

Conclusion

Results of all made examinations proved that offered method of treatment and prophylaxis with laser acupuncture needle is effective for the patients with low and middle level caries intensity while a big period of time (2 years).

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STUDY OF THE PHYSICAL AND MECHANICAL PROPERTIES OF BIOMATERIAL COMPOSITES USED IN MIXED CROWNS

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Introduction

Any mixed crown has to restore the structure of dental arches in order to permit their masticatory, occlusal and esthetics functions. The development of new biomaterial

composites allows to create mixed crowns with superior esthetics and resistance than the acrylic crowns [1-4]. These composites use double or triple polymerisation, completed with thermo- and baropolymerisation. The adhesion of composites to metal is based on mechanical macroretentions in the metallic part or on microretention obtained by electrolytic etching or sandblasting. The use of new adhesive techniques and the development of the computer-generated restorations and crowns determine the increase of quality demands for biomaterial composites used in fixed prosthodontics.

Purpose

The purpose of this study is to evaluate physical and mechanical properties such as flexural strength, compressive strength, diametric tensile strength or water absorption (in accordance with ISO 4049-Resin-based filling materials) as well as the metal adhesion of physiognomical component of the mixed crowns.

Materials and methods

The organic phase consists mainly of Bis-GMA (60%), TEGDMA (30%) and UDMA(10%); Additionally, CQ (0.5%), DMAEM(1%) and BHT polymerisation inhibitor are added. The inorganic phase is based on six vitreous masses (noted G1, G2, G3, G4, G5 and G6) prepared by the conventional melting method. The chemical composition and the synthesis conditions of glass samples are shown in TABLE 1. The chemical bond between the organic and inorganic phases was provided by silanisation of fillers from an acidulated ethanol-water with 3-methacryloyloxypropyl-1-trimethoxysilane (A-174). The composites were prepared as a paste, by dispersing the synthesized fillers in the organic phase. The hardening of the pasta was performed through exposition to visible light in the range of 400-500 nm, for 40 seconds, using a dental lamp (e.g. 3M). After the initial hardening, the biocomposite was subdued to a baro-thermic treatment at 135°C temperature and 60 psi pressure, for 20 minutes. The compositions of the light-curing composite resins are shown in TABLE 2.

Results

Characterization biomaterials composites

The values for the mechanical properties determined for the biomaterial composites after light-curing (CM7 sample), respectively after light-curing and baro-thermic treatment (CM1, CM2, CM3, CM4, CM5, CM6 samples) are shown in FIG.1. The tests for the mechanical properties such as compressive strength (CS), diametral tensile strength (DTS) and flexural strength (FS) were performed with an universal mechanical testing instrument, INSTRONE (VEB Thüringger Industrie Werk Rauenstein Company).

Determination of the water absorption.

Water sorption was measured on composite disks ($\Phi=20,00\pm 0.1$ mm; $h=1.00\pm 0.05$ mm) and stored under distilled water at 37°C for 7 days (FIG.2).

Determination of the composite-metal adhesion through thermal treatment alternative

The test was performed on 50 samples from each composite resin and expressed in per cent values (TABLE 3).