

Justification rehabilitation saliva dental patients after ultrasonic scaling of tartar

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Scaling in dental patients is performed using ultrasound equipment. During the procedure, on the vibrating tip of the nozzle jet of water falls, that is activated by ultrasound and mixed with saliva. Saliva is saturated with ions of Ca and P has a structure in the form of micelles, which forms the core of calcium phosphate. Method crystallography renders specific effects action of physical factors on the water when added to liquids, capable of drying to form crystals [1]. After the action of ultrasound in the preparation of saliva observed destroyed, shapeless, randomly placed crystals [3]. Low intensity laser light (LILL), enhances the crystallization of saliva [2]. After the physical effects of saliva it is needed a rehabilitation. **Purpose.** Examine the nature and duration of response in saliva after mixing it with water, activated by ultrasound and / or low-intensity laser radiation, and give practical advices. **Material and methods.** Cooked preparations saliva of patients (n = 7) at the age of 21 to 23 years. Saliva (V 0,1 ml) was placed on glass slides. In it, depending on the conditions of the experiment (9 series) was added (V 0,05 ml) non activated tap or once activated tap water: immediately after activation and after 10 days from the beginning of the experiment to track the duration of activation of water ultrasound effect, LILL and their combination. Series 1,2,3 were control: 1 - saliva without impacts 2 - saliva mixed with water, 3 - saliva mixed with water to 10 days storage. Saliva mixed with water immediately after the activation in series: 4th - ultrasound, 5th – LILL, 6th - ultrasound, then LILL. We investigated the mixture of saliva and water after 10 days of storage in a series of activation: 7th – ultrasound, 8th - LILL, 9th - combination of ultrasound and LILL. We used dental piezoelectric ultrasound apparatus, f 40 kHz, t 30 sec, and the laser device "APT Smile-01», λ 0,63 m, the power in output of fiber-optic cable 15 mW, t 60 sec. Water was stored in sterile vials wrapped with aluminum foil. The experiment was conducted at room temperature. Study saliva preparations dried in air (n = 63) are taken using a light microscope BI MAM P-13 and PC, x 80, photographed. **Result and discussion.** Analysis of the saliva preparation of control series (1, 2, 3) showed that the pattern of crystals, their shape, number and arrangement have individual features from different patients. The common was the presence of axial line in the crystal, bends of different caliber, angled approximately 90°, the edges of the serration. Adding in the saliva non activated water initiated a change of crystals that bare reversible, transient nature. In the 4th series in crystals notches on the edges has disappeared, they thinned and became more transparent. In the 5th series, on the contrary, the crystals were massive, with a dark outline, appeared new little crystals of saliva. In the 6th series it showed a dual effect: an increase in transparency, thinning and increasing the size of the crystals. In the 7th series the crystals became uneven straight line, with filiations in the form of branches, disturbed crystallogenesis. In the 8th series crystallization has increased, along with large crystals formed new ones. In the 9th series had a dual effect: a continuous field of light crystals with a perfectly flat center line, even a fence taps, the harmony of their location. The effects of activation of water, manifested a change of crystallization of saliva, attacked immediately and grew by the tenth day of observation. **Total.** Water activated with ultrasound's energy affects the crystallization of saliva. After ultrasonic scaling of tartar should advise to patients for rehabilitation of saliva to rinse the mouth with water-activated low-intensity laser radiation for 1-3 minutes. Treatment and preventive measures with using physical factors should conduct controlled with mikrosialokristallography.

1. Britova A.A., Dakhdoukh Munir. Visualization of the effects of laser radiation in biological fluid // Modern possibilities of laser medicine. Veliky Novgorod, 2000. P. 29-31.
2. Britova A.A, Romaniuk V.Y. Effect of low intensity laser radiation on the processes of crystal formation. Laser medicine. 2007. Volume 11, Issue 1. P. 26-29.
3. Skorokhodov I.V. Britova A.A. The impact of physical factors on the crystallization of saliva // Actual problems of modern medicine. National Interuniversity scientific and practical compendium. Volume 8. Veliky Novgorod, 2006. P. 221-223.