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Interrelation between biochemical and clinical indices in patients with gingivitis and periodontitis during treatment by complex antihomotoxic therapy

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Introduction: The oral microbiota is responsible for periodontal diseases like gingivitis, parodontitis, etc. Gingivitis and parodontitis are characterized by an increase in the number and variety of inflammatory cells in the gingival surrounding the tooth root surface. Inflammation of periodontium is a currently imperative problem in dentistry. The spread of gingivitis in children has increased to 30-65% of population. Two important and interrelated factors are involved in the pathophysiological progression of gingivitis and parodontitis: the activation of oxygen radicals and their related metabolites. Increased production of oxygen radicals may contribute to *oxidative stress*. Inflammation is an activating factor of peroxide oxidation of lipids (POL) in periodontal tissues and metabolic disturbances of metabolism. Search of the newest and most effective drugs for treatment of parodontitis at the early stage of the disease and preventive therapeutic methods in order to stop progression to chronic forms of the disease has special value in modern dental practice. The antihomotoxic preparations, which may be recommended for solving the problem, are Traumeel S and Coenzyme compositum. Usage of these antihomotoxic preparations based on their composition, properties, mechanism of action and possibility to use for oral application. Saliva as a biological liquid of the human organism may be a reflection of the metabolic state.

Purpose: of this investigation was a comparative examination of seven salivary parameters in the patients with gingivitis and parodontitis during treatment by traditional methods and using complex therapy with antihomotoxic preparations.

Material and Methods: The 45 children (12 years) with gingivitis were treated traditionally ("Metrogyl-denta gel", India) and with complex antitoxic therapy (Traumeel S ointment and Coenzyme compositum, "Heel" GmbH, DE) during 7 days. The 37 patients (19-47 years) with mild parodontitis were treated by traditional therapy (n=18) and by complex therapy, including Traumeel S and Coenzyme compositum (n=19) during 10-14 days. Twenty healthy children (12 years) and 25 adult (20-35 years) were the control groups. The clinical effects were estimated with help of Green Vermilion, PMA indexes and Pisarev-Shiller test. Saliva (mouth liquid) was collected in the morning and centrifuged at 600 g for 10 min. After centrifugation in saliva were determined with Spectrophotometry methods (DiaSysInt) the activities of glutathione reductase (GR), glutathione S-transferase (GST), glucose-6-phosphate dehydrogenase (G6PD), alkaline phosphatase (AlkP) and contents of reduced glutathione (RG), thiocyanate (SCN) and protein.

Results: The first examination of patients with parodontitis showed the elevation of AlkP (183,8%), GST (141,9%), protein (157%) and low levels of RG (86,3%), GR (95,2%), G6PD (84,4%) and SCN (36,7%). Correlation Spirmean analysis indicated imbalance between activities of GR and G6PD in patients before treatment ($r=+0,382$; $p>0,05$) and the strong positive interrelation in healthy ($r=+0,763$; $p<0,005$) and in a week of treatment ($r=+0,906$; $p<0,01$). Correlation analysis between the salivary biochemical parameters and clinical characteristics (indexes) indicated the positive interrelation between RG and PMA before treatment ($r=+0,767$; $p<0,01$) and after end of both therapeutic courses. A strong positive correlation between PMA and SCN was indicated after complex therapy only ($r=+0,870$; $p<0,05$).

Conclusion: Complex therapy decreased activity of AlkP and GST, restored imbalance of the antioxidant defense and was more effective than the traditional therapy alone in the patients with parodontitis. This fact was confirmed by the dynamics of salivary biochemical and clinical indexes, the more effective improvement of the patient's health status, and the reduction of periodontal inflammation period and treatment course duration.

Biography

Ludmila Gavriiliuc is Professor of Biochemistry and Clinical Biochemistry Department of Nicolae Testemitanu State University of Medicine and Pharmacy, Chisinau, Moldova. She graduated from the State Medical University, Medico-Biological Department, Speciality - Biochemistry, Moscow, Russia, and completed PhD (1978) and MD (1997) at the State Medical University, Moscow, Russia. She had the Scholarships in Russia, Italy, USA (01-08.2013, Fulbright Program U.S., Feist-Weiller Cancer Center, LSU HSC, LA). She is author of 104 scientific and methodic peer-reviewed manuscripts and 6 books. Areas of her scientific interests are clinical-diagnostics, oncology, hematology, stomatology, antioxidant therapy.

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