

значение соматотипа, актуальность дальнейших исследований такого конституционального подхода и являются основой для разработки лечебно-профилактических мероприятий.

**Ключевые слова:** конституция человека, соматотип, компонентный состав тела, цервикокраниалгия, цервикобрахиалгия, цервикалгия, боль в шее, течение, нарушения шейного отдела позвоночника.

## EFFECT OF HUMAN CONSTITUTION SOMATOTYPE ON THE CLINICAL PRESENTATION REFLEX VERTEBRONEUROLOGICAL DISORDERS IN CERVICAL SPINE

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The data presented their research confirming the influence of human constitution somatotype on clinical presentation and course of reflex vertebroneurological disorders in the cervical spine (cervicocranialgia, cervicobrachialgia, cervicalgia). The data indicate etiopathogenetic somatotype and prognostic significance, the relevance of further research of the constitutional approach is the basis for the development of therapeutic and preventive measures.

**Key words:** constitution of the person (human constitution), somatotype, body composition component, cervicocranialgia, cervicobrachialgia, cervicalgia, neck pain, course, disorders in cervical spine.

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## THE EXPERIENCE OF USING THE DIAGNOSTIC APPARATUS “COMPADENT” IN CLINICAL ESTIMATION OF ELECTRIC POWER CHARACTERISTICS OF FIXED METAL PROSTHESES

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*The article is dedicated to the estimation of the results and efficiency of the author method and diagnostic apparatus “CompaDent”, as well as the authentic program software in the clinical practice of a dentist.*

**Key words:** estimation of metallic dental prostheses electric power characteristics; diagnostic apparatus “CompaDent”.

**Introduction.** The actuality of the topic is stipulated for the increased occurrence of the metallic alloy dental prostheses incompatibility symptom complex, and impossibility of the qualified stomatological management without qualified diagnostics of metallic dental prostheses electric power characteristics in the oral cavity [1, 3, 4].

The observed clinical manifestations are characterized by a complex nosotropic mechanism, caused by combination of sensibilizing, toxic, reflex, mechanic, electrical chemical and combined action of metallic dental prostheses [3].

To obtain the electric power characteristics of the metallic dental prostheses in oral cavity various authors have used many different apparatuses and methods, which haven't always satisfied the required needs of clinicians [3].

The subsequent treatment of metallic alloy dental prostheses incompatibility proceeding, the most effective measure is a selective removal of electric active metallic prostheses or dentures, or complete removal of all metallic dental prostheses.

The decision about the removal of metallic dental prostheses should be based on the dental prostheses' electric potential parameters, figures characterizing current

between the metallic inclusions and the threshold of oral mucosa individual electrical sensitivity to the direct current [1, 3].

The selective removal of the metallic dental prostheses changes prosthesis' potential distribution and, appropriately, may cause re-distribution of electric-chemical and electric- power characteristics of the oral cavity. This will lead to remission of subjective manifestations or appearance of new symptoms, which will negatively influence the treatment effectiveness [1].

This disadvantage can be eliminated by using the proprietary diagnostic apparatus "CompaDent" (fig. 1) and specially designed program software [2], the opportunities of which were described in the previous publications [1].



Fig. 1. An apparatus for measuring electric power characteristics in the oral cavity ("CompaDent")

The aim of the article was to increase the quality of dental prosthetics with fixed dentures by improving diagnostics of metallic dental prostheses electric power characteristics in the oral cavity, due to analysis of the obtained research data.



Fig. 2. Electric power characteristics of metallic dental prostheses (initial ones, before removal of the disturbing metallic dental prostheses)

**Discussion of the results.** The study includes data of examination of 102 patients, aged 20–83 years, with complaints indicative of metallic dental prosthesis incompatibi-

lity symptom-complex. To examine the patients and estimate electric power characteristics the authors have used diagnostic apparatus “CompaDent”, the proprietary program software and improved method of estimating electric power characteristics of metallic dental prostheses in oral cavity. Due to this the authors have managed to calculate the parameters which are almost impossible to be measured by examination, e. g.:

- to detect the etiologic metallic dental prosthesis, estimate the direction of current between certain metallic dental prostheses in the oral cavity;
- to detect the pairs of metallic dental prostheses, which can sustain the most powerful current;
- to examine the instaneous power and personal internal resistance of the metallic dental prostheses in the oral cavity (fig. 2);
- to search for the biologically active points in the oral cavity, the topography of which directly influences accuracy of measuring the oral mucosa’s individual electric sensitivity threshold;
- to estimate the threshold of oral mucosa individual sensitivity to the direct electric current due to the biologically active points’ location.

A unique peculiarity of the proprietary diagnostic apparatus “CompaDent” and the proprietary program software is the possibility of modeling by computer virtual “extraction” of the present in the oral cavity “disturbing” metallic dental prostheses and obtaining the results in tables with data for the analysis, without physical removal of the metallic dental prostheses from the oral cavity (table).

**Electrical power characteristics of metallic dental prostheses pairs and individual electric characteristics of the patients**

Characteristics	The electric power characteristics and position of the disturbing metallic prostheses in the oral cavity					
The greatest potential difference, mV	266,5		260		247	
	26	12	26	13	46	12
The greatest current parameter of contacting, $\mu\text{kA}$	12,2		11,8		11,6	
	46	11	34	11	24	46
The least internal resistance, kOhm	5,5		7,4		8,3	
	34	11	46	11	24	11
The greatest power of the metallic prostheses pair, $\mu\text{kW}$	2284		2046		1967	
	46	13	46	12	34	13
Tongue tissue electric resistance, kOhm	177,8					
Tongue tissue electric resistance, $\mu\text{s} \cdot 10^6$	6					
pH in the oral cavity during the examination	7,1					
Individual sensitivity, $\mu\text{kA}$	5					

After examination of the electric power characteristics of the metallic dental prostheses in the oral cavity, the metallic dental prostheses were removed according to the detected and calculated data:

- the greatest potential difference is 247–266,5 mV;
- the least internal resistance makes up 5,5–8,3 kOhm;
- the greatest instaneous power is 2284  $\mu\text{kW}$ ;
- the greatest current characteristic produced by the metallic prosthesis is 12,2  $\mu\text{kA}$ .

To provide for the better treatment effectiveness the authors analyzed the electric resistance (Ohm) and electrical conductivity of the tongue tissues, the position of which was previously detected in the oral cavity.

The patients were always informed about the necessity of removing the metallic dental prostheses, they were told about possible protracted improvement.

Due to the fact that the development of incompatibility with the metallic dental prostheses is influenced by the individual organism peculiarities, accompanying pathologies, the dental-mandibular system condition (occlusal contacts, masticatory

muscles, etc.), the authors combined the following algorithm of clinical measures with the removal of metallic dental prostheses:

1. Removal of basic etiological factor (metallic dental prosthesis) due to estimation and calculation of the electric power characteristics of metallic dental prostheses in the oral cavity using the diagnostic apparatus "CompaDent" by improved method;
2. Nosotropic treatment of general and local clinical symptoms;
3. Measures, aimed at elimination of the metallic dental prostheses alloys' electrolysis products;
4. Prosthetic dental treatment using the temporary and permanent fixed prosthetic dentures.

**Conclusions.** Application of the diagnostic apparatus "CompaDent", the proprietary program software and improved methods of estimating and calculating electric power characteristics of metallic dental prostheses in the oral cavity represent an important component of examination of patients with metallic dental prosthesis incompatibility symptom complex, a necessary stage of complete prosthesis functioning, which make up an main task for the specialists to be solved at a diagnostic stage. The main diagnostic criterion which stipulates for the necessity of metallic dental prostheses removal is the instaneous maximum power which a certain metallic dental prosthesis may develop. The obtained results of treatment using the "CompaDent" apparatus evidenced about the method effectiveness in 92 % of patients within a short time period (2–6 months) and in 82 % in a long time period (more than a year), as the metallic dental prosthesis incompatibility manifestations subsided and disappeared.

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#### ДОСВІД ЗАСТОСУВАННЯ ДІАГНОСТИЧНОГО АПАРАТА «КОМПАДЕНТ» В КЛІНІЧНІЙ ОЦІНЦІ ЕЛЕКТРОЕНЕРГЕТИЧНИХ ХАРАКТЕРИСТИК НЕЗНІМНИХ МЕТАЛЕВИХ ПРОТЕЗІВ

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Стаття присвячена оцінці результатів та ефективності авторської методики і діагностичного апарата «КомпаДент», а також аутентичного програмного забезпечення в клінічній практиці лікаря-стоматолога.

**Ключові слова:** вимірювання електроенергетичних характеристик металевих зубних протезів; діагностичний апарат «КомпаДент».

#### ОПЫТ ПРИМЕНЕНИЯ ДИАГНОСТИЧЕСКОГО АППАРАТА «КОМПАДЕНТ» В КЛИНИЧЕСКОЙ ОЦЕНКЕ ЭЛЕКТРОЭНЕРГЕТИЧЕСКИХ ХАРАКТЕРИСТИК НЕСЪЕМНЫХ МЕТАЛЛИЧЕСКИХ ПРОТЕЗОВ

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Статья посвящена оценке результатов и эффективности авторской методики и диагностического аппарата «КомпаДент», а также аутентичного программного обеспечения в клинической практике врача-стоматолога.

**Ключевые слова:** измерение электроэнергетических характеристик металлических зубных протезов, диагностический аппарат «КомпаДент».