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UP-TO-DATE ANESTHETIC POSSIBILITIES IN DENTISTRY PRACTICE IN DIAGNOSIS OF THE PATIENT'S ALLERGIC STATUS

Abstract. *This article highlights one of the anesthetic techniques in dentistry practice considering dental care provision for allergic patients in dentistry. It deals with antihistamine pharmaceutical medication revealed to be the prophylactic and anesthetic remedy in dental practice for the patients with positive diagnostic tests for allergen detection (immunochemistometry).*

Key words: *anesthesia, allergic reaction, "an immune and immune depression zones", dental practice.*

Introduction. According to dental institute data sets of Ukrainian AMS, more than 30% of the dental patients are found to be in "a risk group" as those having an allergic reaction of different genesis [1]. Considering the findings of the World Health Organization, about 25 % of the Earth population is revealed to have the allergic reaction for medical preparations [2]. The world increases in new arrivals in all spheres of the human activity, including allergens which tend to renew, and their amount grows either. People start to refuse expensive natural thing prefer them to chemical equivalents. We make use of food products nourished with chemical fertilizers, the most of the machines constructed with artificial materials, not to mention the detergents that can cause the allergic reaction [3]. Many materials of the human activity are detected to have the non-specific and specific response of the human immune system. It can result in overloading the somatic disease progression, uppermost of the allergic nature [4].

Moreover, the allergic reaction may also occur to medications, likewise to the dental anesthesia at your dental visit [5]. The anesthesia, as well as the allergy to it, seem to be extended presently [6]. But at the same time, doctors and patients are still satisfied with the results of the anesthesia effect [7]. The extensive application of local anesthetic drugs at dental manipulations, as well as the use of different substances and materials in dentistry, lead to a rise of allergic diseases

extension, increase the frequency of objectionable reactions to plastic [8, 9, 10], metals [11, 12], filling materials[13,14], impression masses[11], latex products (such as latex gloves) used in medicine [15] and in dentistry either[16, 17].

At his practice, which is frequently related to the work of allergy specialist, the dentist may detect a typical allergic reaction: associated with the delayed-type hypersensitivity mechanism followed by the contact dermatitis manifestation, especially to medications applied directly to the skin; associated with the Ige-dependent reaction accompanied by anaphylactic shock, Quincke's edema, hives and bronchial asthma [18, 19, 20]. Such reactions usually associated with the main symptoms of allergic diseases such as itching, edema, hyperemia, skin rash, bronchospasm, stuffy nose, sneezing, rhinorrhea, itching and reddened eyes, lacrimation, the generalized hives and Quincke's edema, anaphylactic shock [21]. Being identical in their clinical manifestations they can cause certain complications. To be guided only by the clinical picture of the disease, it appears to be difficult to perform a diagnosis in those particular cases [22].

At the same time, the maintenance of the "allergy" dental status is possible only under particular allergy tests, specific or non-specific, binding to allergens and performed in the allergy room [23]. In connection with aforementioned, the diagnostic interpretation of the received

results is to specify with an allergy specialist [24]. Thus, the laboratory techniques are preferable in allergy diagnostics, which is very safe to the patients with allergic diseases, rather high informational content, may be examined distantly and less amount of blood is required [26]. It is

worthy of attention that the choice basis of laboratory methods of identification of the particular antigens depends on the leading type of the allergic reaction of the patient [27, 28]. (See the table below)

Table

Current methods of the laboratory diagnosis of the allergic diseases depending on a leading type of the allergic reaction.

Type of the reaction	The clinical manifestations of the AD (allergic diseases) in dental practice	Laboratory methods of identification
<i>The IgE-dependent reaction</i>	anaphylactic shock, hives, Quincke’s edema, and bronchial asthma attack, latex allergy, atopic dermatitis	Basophil activation tests, the RAST (radioallergo-sorbent test), the ELISA (enzyme-linked immuno-sorbent assay), immuno-fluorescence tests, chemi-luminescent assays (MAST-test), immuno- themistometria, reverse passive hemagglutination test (RPHA)
<i>IV delayed-type hypersensitivity</i>	Contact dermatitis, erythemovesicular dermatitis, hemorrhagic vasculitis, latex allergy	Reaction of lymphocytes blast formations, leukocyte migration inhibition reaction, rosette formation test, chemi- luminescent assay

The dentists should take into consideration the fact that neither positive nor negative results are not finally veritable while evaluating the findings [29]. In their general action, dental anesthetic drugs and their components – incomplete allergens, so called haptens, may transform into complete allergen after connection with their proteins and keep its ability to sensibilisation (hypersensitivity). Sensabilisation appears to be imperceptible and depends on the dosage of the material [30, 31]. Human body allergization under the constant contact with materials may result in changes of the immune system condition in the human organism [32, 33].

Therefore, the dentist should remember that he is responsible for prediction of the development of the allergic reaction risk in patients and have to detect the allergic reaction by all on hand means and use all informative methods available in the allergy room.

Anesthetic is an allergen, and there is no hypoallergic anesthetic drugs. Every patient planning the anesthesia may experience allergic response even to anesthetic drugs used several times earlier [34].

Regarding the aforementioned facts, the aim of

the present research has been formulated as the following – to survey the action of the one hypoallergic pharmaceutical medication revealed to be anesthetic in the patients having positive diagnostic assays to allergen detection (immunothemistometria).

Hypoallergic anesthetic drugs do not exist, but there are hypoallergic pharmaceutical medications that act as relievers.

We present our results of the investigation related the most urgent problem in dentistry. At the dental office, within 2002-2016 years 45 patients have been provided with the dental care. In the specialized allergic room, the allergic specialist diagnoses these patients to have allergic status: 30 patients have got 1-3 certificates that prove to perform diagnostic tests (immunothemistometria) for detecting allergen to medical anesthetic drugs and other medications (1st group), and 10 patients (2nd group) have got 3-6 certificates and in 5 patients the number of certificates goes beyond 10 (3rd group). The age of the patients ranges from 18 to 50, including 14 males and 31 females.

Five persons (3rd group) were provided with diagnostic tests at their every dental visit. The

special features of the records: tests, done to one and the same anesthetic drug, and conducted on different calendar days, reveal both positive and negative results. Special data charts, depicting “immune zones”, and “immune depression gaps” were worked out for those patients.

The main complaints of the patients before the conducting anesthesia were fear to experience anesthesia, to suffer side effects such as itching of the cutaneous covering, edema of the mucous membranes of the oral cavity, heavy nasal breathing and clearly defined allergic rhinitis, conjunctivitis, hives, body temperature rise, a general feeling of being unwell, pain and discomfort feeling in the projection region of the dental manipulations performed by the doctor.

Hypoallergic anesthesia with a pharmaceutical medication was defined by an anesthetic duration and area, corresponding intraoral anesthetic techniques with dental anesthetic drugs.

The hypoallergic anesthetic pharmaceutical medications (antihistamine preparations) were administered to the patients of the 1st – 2nd groups (n = 40) during “an immune zone”. The anesthesia performed to the patients of the 3rd group with dental anesthetic drugs during the immunodepression gap give a positive response to diagnostic assays (immunochemistometry).

The treatment efficiency was evaluated regarding the patients’ complaints such as increased anesthetic feeling of the oral cavity area, breath normalization, and absence of a headache, swelling signs of the mucous membranes of the oral cavity, tongue, pharynx, and nose.

The objective criteria claim that to conduct painless dental manipulations tend to be possible in the dental practice.

The following recommendations were advisable to all the patients undergone surgical interference: medical inspection during one hour within the dental office area with the feather stay at home, and forbidden car handling.

It should be mentioned, that during anesthesia with hypoallergic antihistamine medications in the 1st and 2nd group slightly positive allergic response (itching of the forearm skin) was revealed in one case. Considering this weak positive allergic reaction, the patient was suggested to perform anesthesia with another

reasonable antihistamine medication required for conducting dental manipulation.

Now then, the number of the allergens and the number of the patients having allergic reactions increase gradually.

The dental specialists should remember that due to the dosage of the dental anesthetic materials, so-called haptens (incomplete allergens) may transform into complete allergens after connection with their proteins, and it is depended on the ability to sensibilization (hypersensitivity) since the latent manifestations of the human organism are also possible.

Positive allergic testing results prove that the organism has sensibilization to certain allergens only at present period of time (during twenty-four hours).

The laboratory methods of allergen diagnostics tend to be predominate due to their absolute safe to the patient having allergic diseases, sufficiently high informational value, a possibility of the distant examination, less amount of blood is required.

The level of sensibilization (hypersensitivity), depending on the part of the day and year, creates “immune and immune depression” zones, where the reaction to one and the same allergen revealed to have either positive or negative result.

To prevent unwanted reactions in the dental practice, antihistamine medications are to be reasonably administered only during the period of the “immune zone”, as the preventive antiallergic drugs.

Finally, anesthetic regarded to be an allergen, and there are no hypoallergic anesthetic drugs. Planning the anesthesia to be performed in the dental practice, you may use antihistamine drugs as those to be hypoallergic pharmaceutical medications to get anesthesia effect of the oral cavity.

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CONTENT:

Galagdina A.A., Dmytrenko R.R., Bambuliak A.V. Diagnostics of ischemic-reperfusion damage of the brain in rats afflicted with diabetes mellitus	3
Guranych S.P., Voronych-Semchenko N.M., Guranych T.V. Macro- and microelement status of rats with insulin resistance against the ground of iodine deficiency	6
Fedyshyn T.V., Maliar V.V., Maliar V.A. Peculiarities of utero-placental blood circulation formation in women with spontaneous and recurrent miscarriages associated with vagina dysbiosis	10
Rusnak V.F., Bedyk V.V. Growth of the pharynx at the end of the fetal stage of human ontogenesis	13
Teplytskyi S.S. Formation and development of the skin on the palmar surface of the hand throughout the period of prenatal ontogenesis and its importance in dermatoglyphics	16
Tkachuk N.P., Bilookyi V.V., Gyrla Ya.V., Sheremet M.I. Evaluating the efficiency of the scale for prediction of post-operational relapse in patients with nodular goiters	20
Yemelyanenko N.R. Anatomical transformations of the nasal septum in childhood	24
Kavun M.P. Morphogenesis of the hepatic-duodenum ligament in early ontogenesis of the human	26
Kotyuzhinskaya S.G., Umansky D.A. Functional state of lipittransport system in patients with atherosclerosis with fatty load	28
Lomakina Yu.V., Burdeina M.P. Stress-associated changes in the excretory function of the kidneys in old rats under the conditions of a usual light period	32
Malyar V.V. Structural and functional features of fetal membranes in pregnant women with moderate idiopathic oligo- and polyhydramnios	35
Nesterak R.V., Gasyuk M.B. Pilot investigation of the method of interactive training of patients at the stage of medical rehabilitation and treatment	38
Pecheryaga S.V., Marinchina I.M. Features of hemodynamic changes in spiral arteries with low placentation at the early gestational age	42
Psychenko V.V., Chernov V.S., Frenkel Yu.D. The status of extraorganic blood flow in pineal gland of rats under conditions of acute stress and twenty-four hour darkness	44
Reshetilova N.B., Glubochenko O.V., Kulish N.M., Dudko A.G. Formation of anterior cerebral vesicle cavities at the 5th week of the embryonic period	47
Riznichuk M.O., Galitskaya V.O., Dyhodyuk Yu.V., Kravchuk Yu.V., Vakaryuk O.V. Prader-willi syndrome, diagnostics and currency features	50
Shalamay U.P., Pavlikivska B.M., Voronich-Semchenko N.M. The state of autonomous heart regulation in adolescents with light iodine deficiency and latent iron deficiency	52
Shutova N.A., Nikolayeva O.V., Sulkhodost I.O. Electromagnetic radiation impact on the cellular protective mechanisms in experiment	58
Yasnikovska S.M., Hrytsak H. Evaluation of clinic-laboratory and ultrasonic research results in different forms of the chorion's pathology in the first three-month of gestation	61
Yashchyshyn Z.M., Zaiats L.M., Yurkiv I.Y., Maslyak K.T., Vodoslavskaya N.Y., Sikomas M.T. Changes in neuroglial interrelation of muscle-intestinal nerve plexus of esophagus after one-sided crossing of vagosympathetic trunk	64
Navarchuk N.M., Kosteniuk S.V. Morphogenesis of the dentognathic apparatus during the early times of the human ontogenesis	67
Rusnak V.F., Bedyk V.V. Features of pharyngeal morphogenesis in five-week embryos	70
Talanova O.S., Apt O.A. Specifics of distribution of glycosaminoglycans in the white pulp of the spleen and stroma of rats after experimental modeling injection inside the fetus of antigens of different nature	72
Pivtorak K.V., Mazur I.A., Voloshin M.A. Correction of metabolic disorders caused by non-alcoholic fatty liver disease	74
Rozhko V.I. Research of content correlation of immunoglobulins and lisozyme in oral fluid of children with rampant caries against the background of gastro-intestinal diseases	78
Karavan Ya.R., Havaleshko V.P. Up-to-date anesthetic possibilities in dentistry practice in diagnosis of the patient's allergic status	80



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