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MECHANISMS AND MODELS OF PATHOGENESIS OF ODONTOPHOBIC REACTIONS IN CHILDREN WITH DIFFERENT LEVEL OF MENTAL HEALTH

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Abstract

The state of psychological well-being, and moreover, the state of mental health of the child has a significant impact on compliance with recommendations to ensure the optimal health of the oral cavity.

The study of the effect of children's mental health on the health of their oral cavity is necessary for the further formation of highly congruent and personified recommendations for the care of teeth in each group of children with different levels of mental health. Despite the intense development of both pediatric psychiatry and pediatric dentistry, some aspects of it, including anxiety and phobia disorders in children with underlying mental health disorders, remain poorly understood.

To understand approaches to the correction of the odontophobic reactions, a detailed study of the mechanisms of pathogenesis of such reactions is necessary to be completed.

The purpose of the study: to form a typology and to describe pathogenesis of the odontophobic reactions in children with different levels of mental health, basing on the analysis of ethostomatological correlates.

Contingents and methods. On the basis of Regional Clinical Dental Hospital, under the conditions of informed consent of parents and according to the principles of bioethics, 100 children with a variety of dental diseases with different levels of mental health, with odontophobic reactions were examined. They were divided into the following four groups: the first group consisted 30 patients with autism, the second group consisted 30 patients with oligophrenia of the mild degree, the third group consisted 20 patients with ADHD, the fourth group consisted mentally healthy children.

Research results. Based on the comparative analysis of the clinical and semiotic content of the odontophobic reactions and the ethostomatological correlates in children with different levels of mental health, mechanisms of their pathogenesis have been established.

In patients with autism, an insulating type of odontophobic reaction develops by *statobehavioral* pathogenetic mechanism, transaffective odontophobic reaction develops by *disposition-reactive* mechanism, and stenic-negativistic odontophobic reaction develops by *hyperdefensive* mechanism.

In children with oligophrenia, confronational odontophobic reaction develops by *hypoanalytical* pathogenetic mechanism, vocalizational odontophobic reaction develops by *situationally-determined* mechanism, and agitational odontophobic reaction develops by *pathocerebrotonic* mechanism.

In children with ADHD, motor odontophobic reaction develops by *kinetodeprivational* pathogenetic mechanism, partly-adherent odontophobic reaction develops by *isomotivational* mechanism, and explosive odontophobic reaction develops by *transalgetic* mechanism.

In mentally healthy children, algophobic odontophobic reaction develops by *algopreventative* pathogenetic mechanism, transcompialant odontophobic reaction develops by *hypomotivational* mechanism, and escapational odontophobic reaction develops by *distancing* mechanism.

Key words: odontophobic reactions; pathogenesis; autism; oligophrenia; ADHD; ethology.

Indicators of dental status in children correlate with numerous biological, physiological and social factors, from living in some region characterized by the specifics of the mineral composition of water, the prevailing mode of nutrition in the population and the specifics of the impact of local biogeocoenosis and current technological situation, to the level

of general education of their parents, the availability of dental care for the population, the implementation of preventive measures for the preservation of dental health [1-4].

The state of psychological well-being, and moreover, the state of mental health of the child has a significant impact on compliance with recommendations to ensure the optimal health of the oral cavity [5].

The study of the effect of children's mental health on the health of their oral cavity is necessary for the further formation of highly congruent and personified recommendations for the care of teeth in each group of children with different levels of mental health (DLMH) [6].

Despite the intense development of both pediatric psychiatry and pediatric dentistry, some aspects of it, including anxiety and phobia disorders in children with underlying mental health disorders, remain poorly understood [7].

The presence of a mental illness in a child creates psychopathological basis for anxiety to respond to a new, unusual situation for him, and thus increases the risk of the odontophobic reactions (OFR) developing in such a child, and also significantly complicates the dental examination because of the difficulties in achieving compliance [8].

To understand approaches to the correction of the OFR, a detailed study of the mechanisms of pathogenesis of such reactions is necessary to be completed.

The purpose of the study: to form a typology and to describe pathogenesis of the OFR in children with DLMH, basing on the analysis of the ethostomatological correlates.

Contingents and methods. On the basis of the Regional Clinical Dental Hospital, under the conditions of informed consent of parents and according to the principles of bioethics, 100 children with a variety of dental diseases with different levels of mental health, with odontophobic reactions were examined. They were divided into the following four groups: the first group (G1) consisted 30 patients with autism, the second group (G2) consisted 30 patients with oligophrenia of the mild degree, the third group (G3) consisted 20 patients with attention deficit hyperactivity disorder (ADHD), the fourth group (G4) consisted mentally healthy children.

The study was implemented using the following methods: anamnestic, clinical-psychopathological, psycho-experimental, ethological, clinical-statistical.

Research results. Based on the comparative analysis of clinical and semiotic content of the OFR and ethostomatological correlates in children with DLMH, the mechanisms of their pathogenesis have been established.

The connection of OFR with dental status was nonspecific and determined by the nature and volume of dental intervention (therapeutic sanation, surgical extraction, orthopedic measures or routine prophylactic checkup).

A direct correlation was established between the nature and subjective significance of pathological sensations (pain, teeth hyperesthesia, violation of the chewing function, dry mouth, hyper / hyposalivation), but this connection was mostly mediated by the nature of dental interventions.

In patients with autism, an insulating type of OPR develops by *statobehavioral* pathogenetic mechanism, when the behavior typical for the child is transferred to the situation of dental examination and manipulation; the basic phenomenon of pathogenesis - stereotypes.

Transaffective OPR develops by *disposition-reactive* mechanism, when discomfort caused by visiting a dentist is actively processing due to predispositional personality traits, which are most clearly reflected in affective area; the basic phenomenon of pathogenesis - obsessions.

Stenic-negativistic OPR develops by *hyperdefensive* mechanism, when dental intervention is considered by the child as an encroachment on personal space, which causes protective response; the basic phenomenon of pathogenesis - isolation.

Relationships between the mental state of children with autism, the indicators of their dental status, the nature of required dental intervention and formation of OPR are reflected in Fig. 1.

In children with oligophrenia, confronational OPR develops by *hypoanalytical* pathogenetic mechanism, when the defeat of the intellectual and associative mental fields of children does not allow them to understand the essence and purpose of stomatological manipulation, and therefore they are perceived as something that should be avoided; the basic phenomenon of pathogenesis - intellectual decline.

Vocalizational OPR develops by *situationally-determined* mechanism, when dental intervention through hyperstimulation of the orofacial zone causes excessive sensory loading, which, combined with the weakness of the volitional sphere, leads to the meaningless use of the speech apparatus; the basic phenomenon of pathogenesis - disturbances of volition.

Agitational OPR develops by *pathocerebrotonic* mechanism, when the pathologically elevated tone of the central nervous system causes motor activation, and the weakness of memory does not allow to remember the need to maintain a stable posture with no motor activity; the basic phenomenon of pathogenesis - forgetfulness.

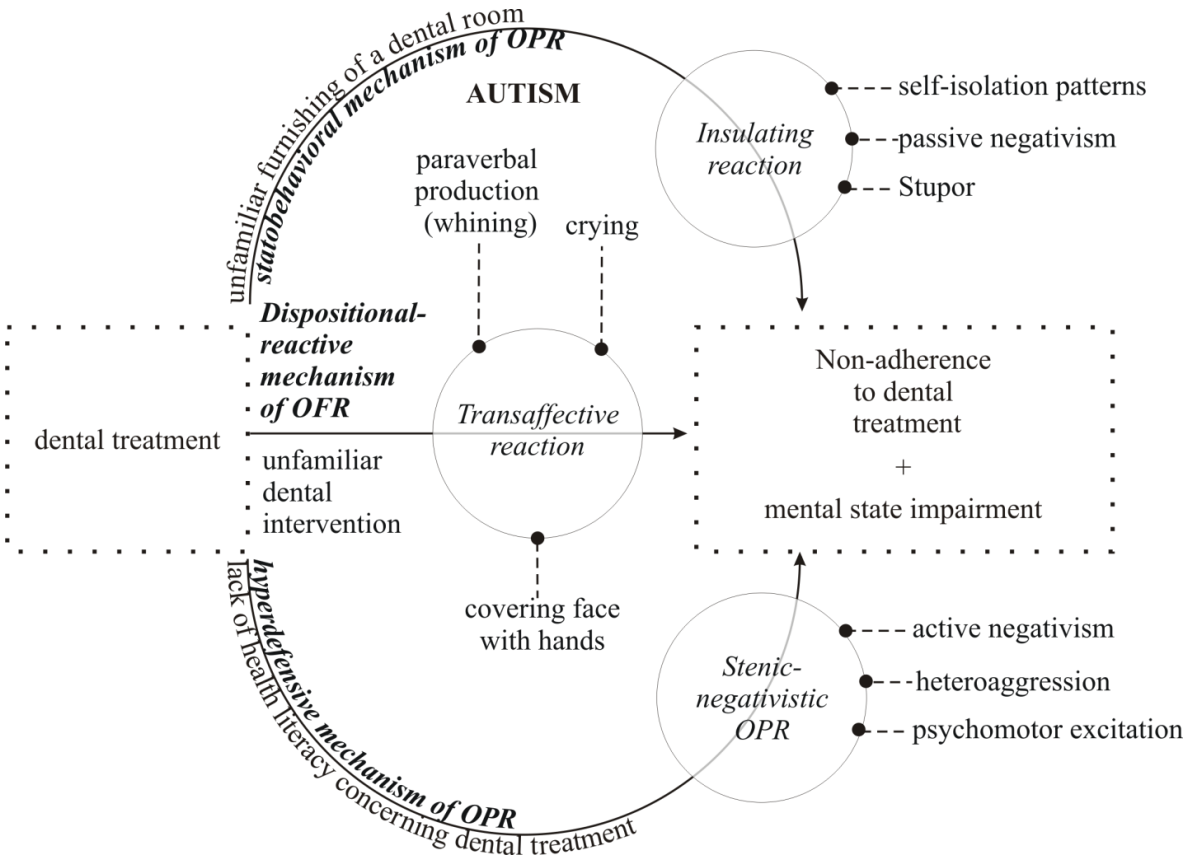

Fig. 1 Mechanisms of formation of OPR in children with autism

Relationships between the mental state of children with oligophrenia, the indicators of their dental status, the nature of required dental intervention and formation of OPR are reflected in Fig 2

In children with ADHD, motor OPR develops by *kinetodeprivational* pathogenetic mechanism, when the impossibility of reaching the reference level of motor activity through the posture derivation in a situation of dental examination finds a discharge in the implementation of spontaneous motor activity; the basic phenomenon of pathogenesis is hyperactivity.

Partly-adherent OPR develops by *isomotivational* mechanism, when the insufficiency in attention sphere does not allow to adhere to the initially congruent (to a situation of dental intervention) behavioral patterns; the basic phenomenon of pathogenesis - attention deficit.

Explosive OPR develops by *transalgetic* mechanism, when pain sensations during dental manipulation are transferred to the subject of action - the doctor, and the absence of volitional delays leads to the implementation of aggressive behavior patterns; the basic phenomenon of pathogenesis - impulsivity.

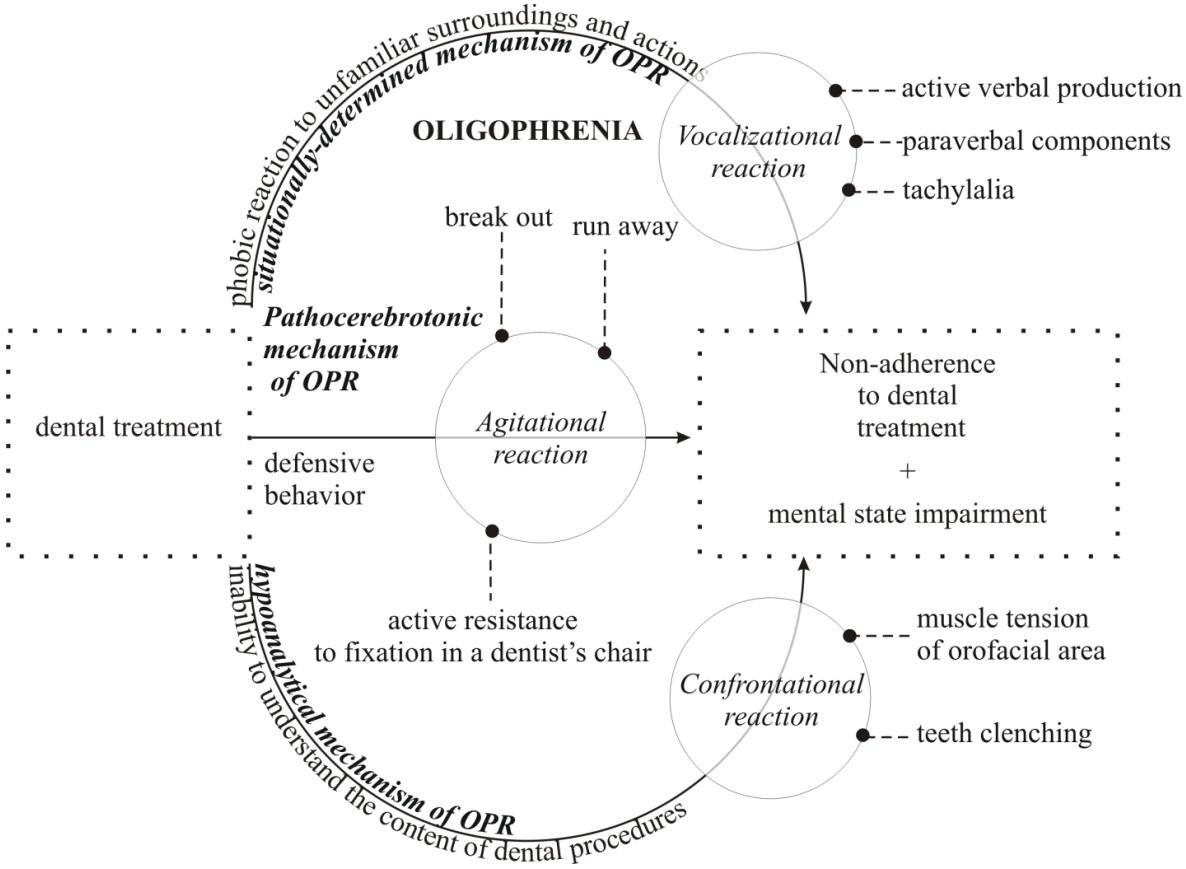

Fig. 2 Mechanisms of forming an OPR in children with oligophrenia

Relationships between the mental state of children with ADHD, the indicators of their dental status, the nature of required dental intervention and formation of OPR are reflected in Fig 3

In mentally healthy children, algophobic OPR develops by *algopreventative* pathogenetic mechanism, when anxious expectation of pain causes the activation of behavioral patterns aimed at their prevention; the basic phenomenon of pathogenesis - algetic component.

Transcompialant OPR develops by *hypomotivational* mechanism, when the lack of interest in the results of dental manipulations in the long-term perspective, combined with the unpleasant sensations caused by realisation of dental procedures lead to a violation of the necessary behavioral modus; the basic phenomenon of pathogenesis – lack of motivation.

Escapational OPR develops by *distancing* mechanism, when the fear of the unknown (due to lack of knowledge about methods of dental manipulation) is accompanied by the appearance of a strong desire to escape; the basic phenomenon of pathogenesis - avoidance.

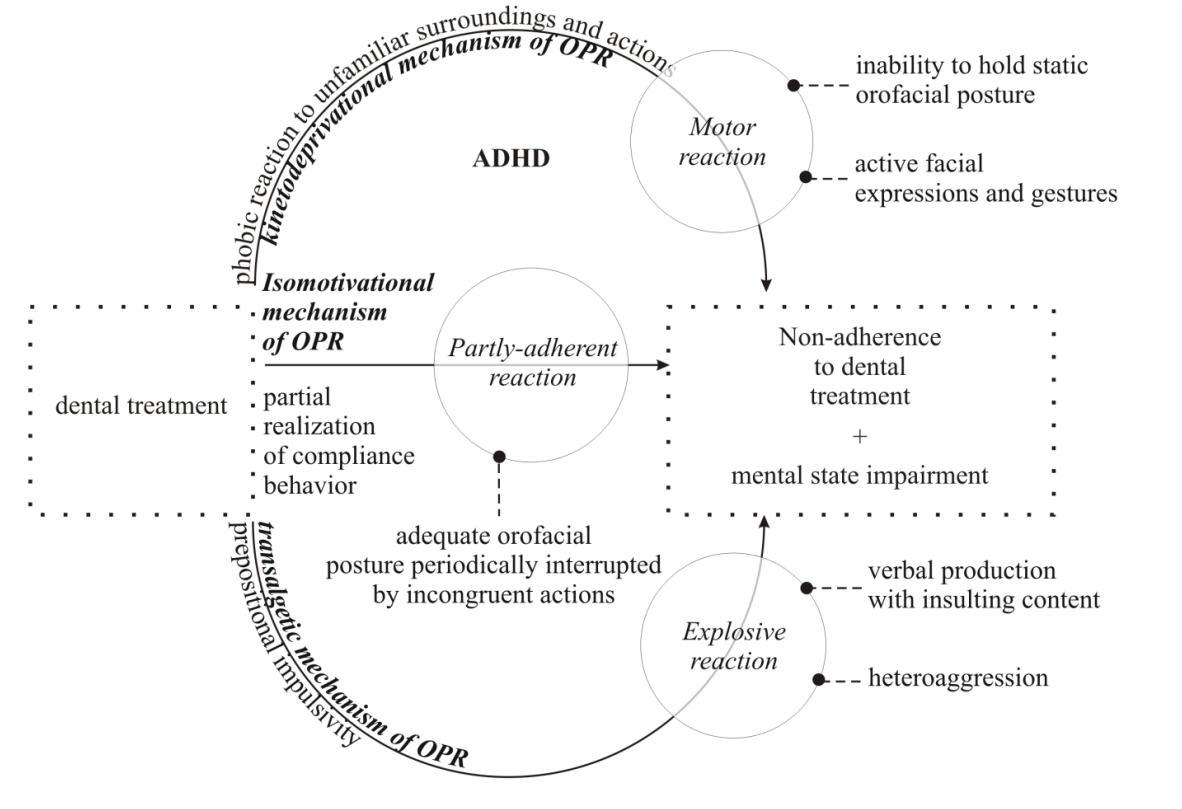

Fig. 3 Mechanisms for the formation of OPR in children with ADHD

Relationships between the mental state of children without psychoneurological pathology, the indicators of their dental status, the nature of required dental intervention and formation of OPR are reflected in Fig. 4

Conclusions:

1. Based on the comparative analysis of the clinical and semiotic content of the OFR and the ethostomatological correlates in children with DLMH, mechanisms of their pathogenesis have been established.

2. In patients with autism, an insulating type of OPR develops by *statobehavioral* pathogenetic mechanism, transaffective OPR develops by *disposition-reactive* mechanism, and stenic-negativistic OPR develops by *hyperdefensive* mechanism.

3. In children with oligophrenia, confronational OPR develops by *hypoanalytical* pathogenetic mechanism, vocalizational OPR develops by *situationally-determined* mechanism, and agitational OPR develops by *pathocerebrotonic* mechanism.

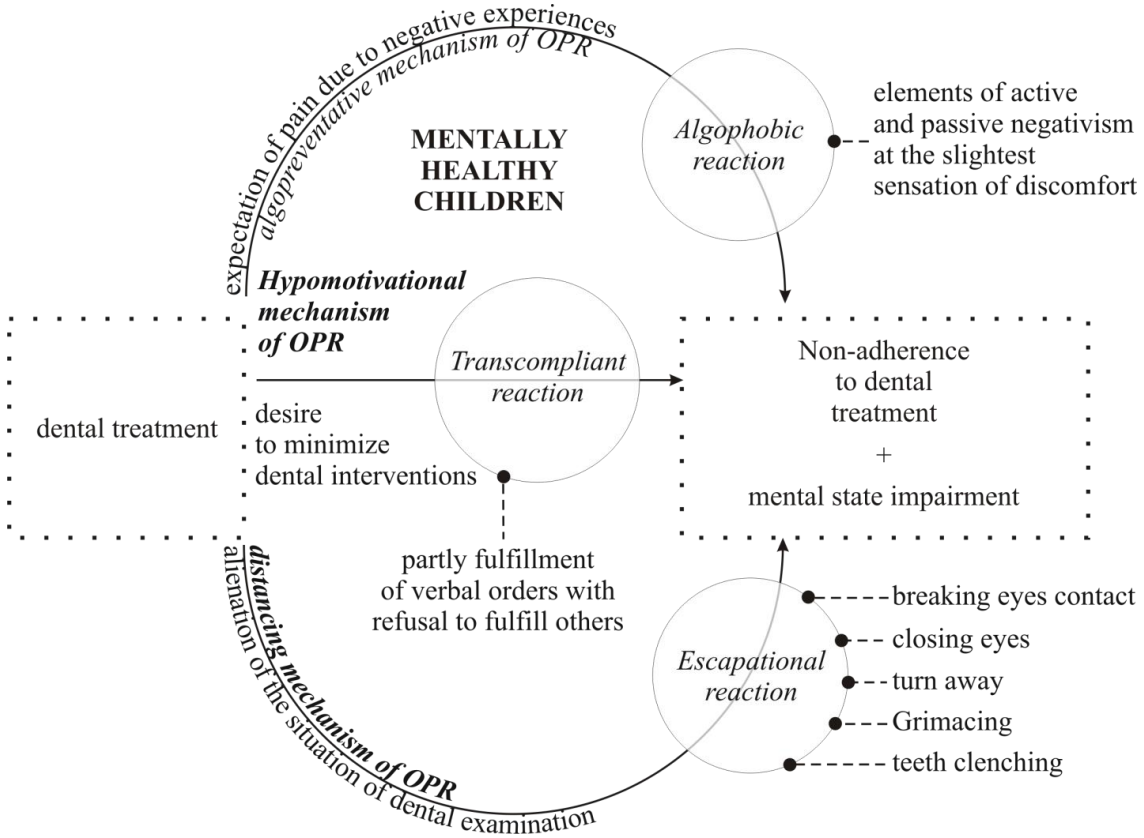

Fig. 4 Mechanisms for the formation of OPR in children with

4. In children with ADHD, motor OPR develops by *kinetodeprivational* pathogenetic mechanism, partly-adherent OPR develops by *isomotivational* mechanism, and explosive OPR develops by *transalgetic* mechanism.

5. In mentally healthy children, algophobic OPR develops by *algopreventative* pathogenetic mechanism, transcompialant OPR develops by *hypomotivational* mechanism, and escapational OPR develops by *distancing* mechanism.

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