APPLICATION EFFICIENCY OF THE TREATMENT IMPROVED METHOD OF ACUTE ODONTOGENIC PERIODITIS IN CHILDREN

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**The aim of our work** – to establish the effectiveness of the improved method of treatment of acute odontogenic perioditis in children suffering from diffuse non-toxic goiter.

**Materials and methods.** 38 children aged 12-15 years with acute odontogenic perioditis against a background of diffuse non-toxic goiter were involved into the treatment and observation. Pharmacological correction was applied in the complex of generally accepted treatment measures, in particular, the appointment of topical probiotic lozenges for absorption «BioGaia Prodentis» and oral administration of the immunomodulatory drug «Imupret» against a background of correction of the trace element supply of the child’s body with the drug «Calcemin advance».

**The results.** The high clinical effectiveness of the proposed method of treatment was established, which was confirmed by the reduction of the treatment period to (5.3±0.26) days against (8.0±0.36) days with the generally accepted method of treatment (p<0.05) and the normalization of all protective components of oral fluid.

**Conclusion.** The proposed method of treatment makes it possible to provide effectively the dental care to children with odontogenic inflammatory diseases, taking into account the etiopathogenetic mechanisms of the formation of the inflammatory process and preventing the development of possible complications from the dento-maxillofacial system and the child’s body as a whole.

**Key words:** children, acute odontogenic perioditis, diffuse non-toxic goiter, oral fluid, immunoglobulins, cytokines, treatment.

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**Introduction**

Odontogenic inflammatory processes in children are a consequence of the irrational treatment of caries complications in temporary and permanent bites. They account for 60 to 80 % of all surgical problems in children related to the maxillofacial region [1-2].

Odontogenic inflammatory processes in children often lead to further complications, chronicity of the process, and negative impact on the general somatic condition of the child. The reasons for this are a unified approach to the treatment of inflammatory processes of the maxillofacial area in children, which does not take into account individual and regional features of the pathological process course[3-6].

Thus, the literature data have every reason to assert the necessity of further search of the methods of treatment and metabolic correction of odontogenic dental diseases in children.
The aim of the work
To establish the effectiveness of the improved method of treatment of acute odontogenic periostitis in children suffering from diffuse non-toxic goiter.

Research materials and methods
38 children aged 12-15 years with acute odontogenic periostitis (AOP) against a background of diffuse non-toxic goiter were involved into the treatment and observation. From the general cohort of children, two observation groups were selected: Group I (main) – 20 children who were offered an improved method of treating AOP by pharmacological correction, and Group II (comparison) – 18 children who received generally accepted treatment measures for AOP by the Protocols for providing medical care for children in the specialty «Pediatric surgical dentistry» dated 08.27.04 №. 426.

The improved method of treatment of odontogenic inflammatory processes in children, in addition to generally accepted surgical and therapeutic measures, provided for pharmacological correction, in particular the appointment of topical probiotic pastilles for absorption «BioGaia Prodentis» and oral administration of the immunomodulatory drug «Imupret» against a background of correction of the trace element supply of the child’s body with the drug «Calcemin advance» [7].

Dynamic clinical follow-up of patients included examinations on the first, third, and seventh day, as well as one month after the end of the course of treatment. The clinical condition of patients was monitored according to the following criteria: assessment of complaints, general condition of the child, degree of hyperemia, edema, exudation, and severity of pain syndrome. Oral fluid was collected for research before and after treatment. The following parameters were determined in the oral fluid of children: the level of lysozyme activity by the bacteriological method of Horina G. as modified by Levitskyi AP and Zhygina OO [8]; the content of sIgA, IgA, IgG by the method of radial immunodiffusion according to G Mancini and the level of IL-1β and IL-4 by the enzyme immunoassay [9].

Somatically and dentally healthy children of the same age served as indicators for control.

Statistical processing of the research results was carried out using the standard Microsoft Office Excel program package. The arithmetic mean value of indicators (M), arithmetic mean deviation (σ), and error of the mean (m) was calculated. The probability of differences (P) was determined by the Student’s test (t).

All studies took place after obtaining the informed consent of parents and children, if they reached the age of 14, for manipulations by the provisions of the GCP (1996), the Council of Europe Convention on Human Rights and Biomedicine (from 04.04.1997), Helsinki Declaration of the World Medical Association on Ethical Principles of Scientific Medical Research with Human Participation (1964-2013), orders of the Ministry of Health of Ukraine No. 690 dated 09.23.2009.

Results and their discussion
The results of clinical observation of children indicate positive dynamics of changes in children of both the main group and the comparison group, however, they were probably better in the main group, in particular, the reduction of the treatment duration of the main group to (5.3±0.26) days against (8.0±0.36) days with the generally accepted method of treatment (р<0.05), a 2-3-fold reduction in the number of complications.

Confirmation of the established clinical changes was the results of paraclinical research of the oral fluid of children in observation groups in the dynamics of treatment. The changes in the local protective factors of the oral fluid of the children in the observation groups were significant in the children treated with the drug complex proposed by us. In particular, the activity of lysozyme increased and was probably different in the subgroups at the end of the course of treatment measures (Fig. 1).

![Fig. 1. The level of lysozyme activity in the oral fluid of children of observation groups in the dynamics of treatment, M ± m.](image)

Note. * – the probable difference between indicators before and after treatment, p<0.05.
sIgA increased, the difference between the indicators in the observation groups at the end of the treatment was 25% in the direction of the increase in the content of sIgA in children who were treated by the method developed by us (Fig. 2).

Fig. 2. The level of sIgA in the oral fluid of children of observation groups in the dynamics of treatment, M ± m.

Note. * – the probable difference between indicators before and after treatment, p<0.05.

The normalization of the content of other immunoglobulins was also observed, which is illustrated by the data in Fig. 3. We did not establish any differences between the mentioned indicators in the observation groups after the course of treatment.

Fig. 3. The level of IgA and IgG in the oral fluid of children of observation groups in the treatment dynamics, M ± m.

Note. * – the probable difference between indicators before and after treatment, p<0.05.

Positive clinical dynamics was also confirmed by changes in the cytokine profile of children’s oral fluid (Fig. 4).

A decrease in the concentration of pro-inflammatory cytokines and an increase in anti-inflammatory cytokines will indicate the normalization of the cytokine balance, and therefore the reverse development of the inflammatory process in the tissues of the maxillofacial area.
**Conclusion**

The proposed method of treatment makes it possible to provide effectively the dental care to children with odontogenic inflammatory diseases, taking into account the etiopathogenetic mechanisms of the formation of the inflammatory process and preventing the development of possible complications from the dento-maxillofacial system and the child’s body as a whole.

**Список літератури**


2. Tkachenko PI, Kolisnіk IA, Pan’kevych AI. Запальні процеси щелепно-лицевої ділянки в амбулаторній хірургії. Полтава; 2017. 103 с.


4. Корнієнко MM. Удосконалення хірургічних методів лікування хворих з хронічними періодонтизами та одонтогенними кістями щелеп [автorefерат]. Львів; 2016. 20 с.


6. Біда РЮ. Клініколабораторне обґрунтування удосконалення методу діагностики та лікування гострих гнійних одонтогенных запальних процесів щелепно-лицевої ділянки [автorefерат]. Ужгород; 2018. 24 с.


8. Лобань ГА, Ганчук ОВ, Петрушано ТО, Мощел ТМ. Проблеми як фактор підвищення колонізаційної резистентності порожнини рота. Актуальні проблеми сучасної медицини. ISSN 1727-4338 https://www.bsmu.edu.ua


**References**


2. Tkachenko PI, Kolisnyk IA, Pan’kevych AI. Zapal’ni protsesy schelepno-lytsevoi dilianky u ambulatoriini khirurhii [Inflammatory processes of the maxillofacial region in outpatient surgery]. Poltava; 2017. 103 p. (in Ukrainian)


4. Komiejenko MM. Udoskonalennia khirurhichnykh metodiv likuvannia khvorykh z kronichnymy periodontytyami ta odontohennymi kistami schelep [Improvement of surgical methods of treatment of patients with chronic periodontitis and odontogenic cysts of the jaws] [avtorefereat]. L’viv; 2016. 20 p. (in Ukrainian)


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