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MODERN METHODS OF TREATMENT OF FRONTITIS (LITERATURE REVIEW)

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Abstract
Chronic rhinosinusitis (CRS) remains a global medical problem, as evidenced by its significant share (about 10%) in the structure of chronic diseases of the upper respiratory tract, high prevalence (1.5 - 10.9%), significant impact on the quality of life of patients and frequent detection of treatment-resistant forms of the disease. Despite significant advances in pharmacotherapy of CRS, the results of conservative methods of treating the disease do not always bring satisfactory results. In this regard, a significant role in the treatment of CRS is given to surgical intervention, which in some cases is the main method of treatment, while conservative methods are given the role of maintaining the achieved result.

Keywords Chronic rhinosinusitis, paranasal sinuses, frontal sinusitis.

INTRODUCTION

Chronic rhinosinusitis (CRS) is one of the most significant clinical problems in global otolaryngology due to the high prevalence of the disease, its significant impact on quality of life (QOL), and the difficulties in treatment, where conservative and surgical methods do not always allow achieving satisfactory and stable results [4].

Evaluation of the prevalence of CRS is quite complex, due to the variability of the disease symptoms, the similarity of clinical manifestations with acute rhinosinusitis, allergic and non-allergic rhinitis, as well as the lack of standards for interpreting complaints and computed tomography (CT) data in this group of patients.

For a long time, the importance of rhinosinusitis was underestimated, as evidenced, in particular, by the relatively small number of reports by foreign authors on the prevalence of the disease in previous decades. The first multicenter study of the incidence of CRS in Europe, which included data from more than 50 thousand respondents from 12 countries, was conducted only in 2011. As a result of the questionnaire and examination, it was found that in the entire sample of respondents, 10.9% of respondents suffer from CRS, in accordance with the EPOS 2007 criteria [2]. In recent decades, the incidence of CRS in the world has been steadily increasing []. Kennedy D.W. in 1994 presented data according to which the number of patient visits to doctors regarding this disease increased from 8 to 24 million from 1989 to 1992. In 1997, the prevalence of CRS was 14% in the US population [`]. According to the study by Blackwell D.L. et al.

(2014), 1 in 8 adult patients (12%) visit an otolaryngologist annually for rhinosinusitis, which significantly exceeds the number of visits for seasonal allergic rhinitis (7%), acute bronchitis (4%) and chronic obstructive pulmonary disease (4%) and is comparable in level to the corresponding indicator for bronchial asthma (13%). Also, CRS is in 5th place in the structure of diseases for which antibiotics are used for treatment.

Epidemiological studies have shown that the prevalence of CRS in the population of different countries averages 10.9% [13]. This level varies somewhat around the world, amounting to 5.5% in Brazil [5], 8% in China [10], 12% in the USA [2], and 1.42% in Russia [3]. The differences in the above indicators are probably due to the variability of the data collection methodology and the criteria for diagnosing CRS. The use of questionnaire methods for this purpose can lead to overdiagnosis of the disease, therefore, in real clinical practice, when confirmed by objective diagnostic methods, the prevalence of CRS most likely ranges from 3 to 6.4% [6]. One of the first large medical and sociological studies conducted by Gliklich R.E., Metson R. (1995) showed that the impact of CRS on QOL is comparable with other common chronic diseases: chronic obstructive pulmonary disease (COPD), coronary heart disease (CHD) and chronic back pain. Another study demonstrated that the impact of CRS on quality of life is comparable with the corresponding indicators for cancer, bronchial asthma (BA) and arthritis [4].

To date, four fundamental international guidelines for the diagnosis and treatment of rhinosinusitis have been published: EPOS [7], Clinical Practice Guideline (update): Adult sinusitis [8], Canadian Clinical Practice Guideline for Acute and Chronic Sinusitis and ICAR: RS 2015 [9]. In 1996, an expert group of the American Academy of Otolaryngology - Head and Neck Surgery formulated a definition of CRS as inflammation of the mucous membrane of the sinuses, lasting for 12 weeks or more. The main diagnostic criteria of the disease were also defined: pain or a feeling of pressure in the projection of the sinuses, nasal congestion, purulent discharge from the nose forward or flowing back, hyposmia or anosmia, an increase in body temperature [2]. In 2003, these clinical criteria were supplemented by the need to confirm the diagnosis with data from objective research methods: rhinoscopy, endoscopy of the nasal cavity and radiological methods [10].

To date, the diagnostic criteria for CRS have remained virtually unchanged and, in accordance with EPOS 2020, include: the presence of two or more symptoms, one of which is nasal congestion (difficulty breathing through the nose) or nasal discharge (forward or backward flow), in combination with other symptoms: pain/pressure in the projection area of the sinuses and/or decreased or loss of smell, for at least 12 weeks. These criteria are supplemented by data from nasal endoscopy and/or CT scan of the paranasal sinuses, confirming the diagnosis of the disease [11]. The diagnostic criteria for CRS in international clinical guidelines are virtually the same: the documents emphasize that the diagnosis of CRS should not be established solely on the basis of clinical symptoms, but must be confirmed by objective diagnostic methods: rhinoscopy, nasal endoscopy or computed tomography of the paranasal sinuses [4]. CRS is traditionally divided into two large groups: polypous rhinosinusitis (PR) and CRS without polyps (CRSBP), the main distinguishing criterion for these forms of the disease is the presence or absence of polypous lesions of the sinuses [12]. However, over time, it became clear that this classification does not fully reflect all variants of the disease, and therefore the EPOS 2020 expert group proposed a new classification of CRS not only depending on the presence/absence of polyps, but also taking into account the primary development of inflammation in the ONP, as well as the mechanism underlying the inflammatory process (belongs to type 2 inflammation or not) [1]. In accordance with the classification proposed by Grayson J.W. et al. (2020), CRS is divided into primary and secondary depending on the etiology of the disease. In turn, each of these forms includes local (unilateral) and diffuse (bilateral) CRS, depending on the volume of sinus damage. Primary CRS were proposed to be

divided into those caused by the 2nd type of inflammation, and CRS in which the sinus lesion is associated with other types of inflammation. The association of CRS with the 2nd form of inflammation indicates a more severe course of the disease, which is more difficult to treat: eosinophilic polypous rhinosinusitis, allergic fungal rhinosinusitis (AFRS). A relatively new nosology, atopic disease of the central parts of the nose, was also included in this group, in which the middle, upper nasal conchae and posterior parts of the nasal septum (PN) are predominantly affected, while the ONF are secondarily involved [2].

Despite the general recognition of the endoscopic approach as a priority in the surgical treatment of CRS, there are still disagreements among specialists regarding the choice of an adequate volume of intervention for a particular form of CRS - from the need to perform a minimally invasive operation limited to the removal of the uncinate process (UP) to the use of extended approaches with the widest possible opening of the UP and, in some cases, drilling the bottom of the frontal sinus (FS) [5]. At the same time, there are not enough publications that would provide the results of a comparison of the effectiveness of different volumes of interventions in the treatment of CRS, and the available works provide conflicting data. A number of authors focus on the so-called surgical factors or "missed" stages of the operation as possible causes of unsatisfactory outcomes of surgical interventions [13]. At the same time, the role of surgical factors in maintaining the inflammatory process in the UP remains insufficiently clear. The key aspect of the problem under consideration is the complex of unresolved issues of surgical treatment of persistent or so-called severe forms of chronic frontal sinusitis, in which standard methods of endoscopic intervention are ineffective [14]. The most important achievement in the treatment of these forms of frontal sinusitis was the introduction of methods of extended endoscopic surgery of the left atrium into clinical practice [15]. At the same time, an insufficient number of anatomical landmarks, the need to use a navigation system, technical difficulties associated with manipulations with a drill in the immediate vicinity of the base of the skull and orbits - all these factors limit the widespread use of such methods of surgical treatment of left atrium pathology in routine practice and require the development of modified approaches.

The main direction of surgical treatment of various forms of CRS is currently endoscopic rhinosinus surgery [16]. The impetus for the transition from traditional external approaches to the paranasal sinuses (PNS) to transnasal endoscopic ones was the lack of satisfaction with the results of existing methods and the emergence of new data on the functions, pathogenesis of PNS diseases, as well as advances in medical technology in the field of development of endoscopic equipment and instruments [17].

The most important component of endoscopic rhinosinus surgery is the need to ensure the safety of the intervention. High variability of the structure of the ethmoid labyrinth (RL), located on the way to any PNS, a certain visual similarity of the walls of the ethmoid cells and the base of the skull, the medial wall of the orbit and other areas adjacent to them often cause difficulties even for experienced specialists, which determines a high level of risk of damage to these structures [18]. In this regard, there is a need for a detailed study of CT data of the sinonasal region, endoscopic anatomy of the sinonasal region, determination of new anatomical landmarks and development of innovative approaches to preoperative planning of endoscopic interventions on the sinonasal region, the use of which facilitates the operation and increases its safety [6].

CONCLUSION

Thus, the high prevalence of CRS in the general population, its significant impact on the quality of life of patients, the absence in some cases of a satisfactory result of CRS treatment, differences in views on the methods and scope of surgical interventions for this disease indicate the high relevance of improving its treatment methods.

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