ASTHMATIC TRIAD, PREVENTION AND TREATMENT.

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Annotation

Aspirin bronchial asthma, aspirin or asthmatic triad (AT) is characterized by three main clinical manifestations - bronchial asthma (BA), polypous rhinosinusitis (PRS) and intolerance to aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs). Despite the fact that bronchial asthma in patients with AT makes up, according to various sources, from 10 to 20% of its clinical and pathogenetic variants, torpid course of the disease, risk of sudden death, sharp decrease in the quality of life of patients, classifies it as the most severe forms of BA. A distinctive feature of the disease is also the high cost of treatment and diagnostic measures. The relevance of the AT problem is evidenced by the fact that the European Coordination Committee was created to study it, and in 2022 - the International Society of Scientists, which coordinates research on the problem of PRS. According to medical statistics, out of 7 million patients with BA in Russia, 1 million have severe forms of the disease, of which 40% of patients are represented by AT or aspirin bronchial asthma.

The asthmatic triad has been known to medical science for about 80 years, however, to this day it remains unclear what causes the severity, polymorphism and uniqueness of clinical manifestations of AT. Many issues of pathogenesis, clinical and diagnostic approaches have not yet been resolved and are discussed by allergists, immunologists, otolaryngologists, pulmonologists.

However, at present, it is believed that: intolerance to NSAIDs in AT is not a true allergic reaction and is not based on E-conditioned mechanisms; the main manifestations of AT - polypous rhinosinusitis and bronchial asthma itself in the asthmatic triad is not a random coincidence of symptoms, but a pathogenetically related pathology. The key role in modern studies of the pathogenesis of AT is still given to the peculiarities of arachidonic acid metabolism, stimulation of increased leukotriene production by aspirin, and increased sensitivity of the respiratory tract to them. In this regard, in recent years, the term "aspirin-exacerbated respiratoriy disease" (AERD) has been increasingly used in foreign literature - a disease of the respiratory system that worsens after taking aspirin. The platelet theory of AT development is also of interest. Thus, it has been established that patients with AT have reduced synthesis of the hormone melonin, while the sensitivity and perverted reaction to melonin of the receptor apparatus of platelets are increased. It has been shown that platelets of patients with AT under the influence of NSAIDs reduce the production of leukotrienes, which have a bronchodilatation effect, stimulate the release of cytotoxic anti-inflammatory mediators. A number of studies pay attention to the change in the function of lymphocytes, mast cells,

eosinophils as a result of chronic intracellular infection, studying in detail the immunological aspects of AT. However, the presented values of the immune status indicators in different authors have significant differences. In this regard, it is not clear which link of immunity is the leading one in this disease.

All currently existing hypotheses explain only individual links in the pathogenesis of AT and, in particular, the development of aspirin-induced bronchospasm. In this regard, therapeutic and diagnostic approaches to AT are considered from the point of view of pathogenetic mechanisms of the development of the asthmatic triad based on the features of arachidonic acid metabolism. Theories of AT pathogenesis exist independently and do not explain the features of the course and development of the complete asthmatic triad in individual clinical and immunological groups. Thus, to date, the causes of excessive formation of leukotrienes, rapid progression of the disease and the formation of glucocorticosteroid dependence in patients who excluded NSAIDs and aspirin from taking have not been clarified. The modern concept of the asthmatic triad does not distinguish between the forms, severity, stages of development and combinations of the main clinical manifestations of the disease - bronchial asthma and polypous rhinosinusitis. Risk groups are not considered and conditions under which initial clinical BA and PRS in the final stage of the disease are capable of forming a picture of the complete asthmatic triad are not taken into account. The influence of individual symptoms - BA, PRS, NNSAIDs on the final formation of the complete AT syndrome has not been studied and the stages of disease development for individual groups of BA patients have not been investigated. It is interesting that to date there are no data on a full allergological examination of patients with the complete asthmatic triad and various combinations of its main manifestations - allergic rhinitis, polypous rhinosinusitis, bronchial asthma. There is no classification in the literature and the stages of development of the complete clinical picture of the asthmatic triad for individual forms of bronchial asthma have not been studied, there are no practical recommendations for prevention and a systemic therapeutic and diagnostic approach to this severe category of patients. Currently, there is no generally accepted concept for the diagnosis and treatment of AT. There are separate recommendations of allergists, immunologists, pulmonologists and otolaryngologists on symptomatic treatment of AT without taking into account the characteristics of the disease. Great hopes were placed on compounds of a new biological class - leukotriene receptor antagonists. However, insufficient clinical efficacy in monotherapy and the high cost of treatment with these drugs limit their use. In addition, it has been shown that the effectiveness of antileukotriene therapy is comparable in patients with and without aspirin intolerance. Various domestic and foreign centers have been developing methods of aspirin desensitization for many years. Until now, some authors consider this method to be the most effective in the treatment of AT. However, the need for long-term inpatient monitoring of the patient, the possibility of developing adverse

pharmacological reactions to aspirin, as well as the unstable clinical effect of treatment when the drug is discontinued, limited the use of this method. Identification of risk groups for the development of a complete clinical picture of AT and a systemic treatment and diagnostic approach to the disease is possible only with a holistic view of the pathogenesis, clinical and immunological features of AT and a study of the mutual influence of the main manifestations of AT.

Objective of the study. To present the clinical and immunological characteristics of AT, the ways of its formation and therapeutic approaches to control the main manifestations of AT.

Research objectives. 1. To study the stages and patterns of development of individual manifestations of the asthmatic triad (BA, PRS, NNSAIDs) and their influence on the formation of the complete AT syndrome.
2. To present the features of the allergological characteristics of the complete AT syndrome at various stages of its development.
3. To identify the features of the immunogram and local immunity indicators in patients with AT at various stages of its development.
4. To establish the main risk factors for the development of AT, to identify and present clinical, laboratory, allergological and immunological markers of risk groups of patients with initial manifestations of the asthmatic triad.
5. To develop and substantiate clinical and diagnostic criteria for establishing the diagnosis of the asthmatic triad, depending on the clinical course options.

Research results. In recent years, close attention has been paid worldwide to the issues of the relationship and joint course of year-round allergic rhinosinusitis (AR) and bronchial asthma (BA). The relevance of this problem is due to many reasons, among which the most significant are the high prevalence of the combination of year-round AR with bronchial asthma, the almost universal annual increase in the number of patients with this pathology, its pronounced impact on social activity and quality of life of people, significant material costs associated with the treatment of this category of patients.
Since the beginning of the study of the relationship between the upper and lower sections of the respiratory tract, it has been proven that they are a single whole in structural and functional terms. This is confirmed by the mutual influence of AR and BA. The great importance of sensitization foci in the upper sections of the respiratory tract on the occurrence and course of BA has been confirme. With a combination of year-round AR with BA, the state of the respiratory epithelium of the nasal cavity depends not only on local pathological changes, but also on the nature and degree of damage to the lower respiratory tract. Similarly, the function

of the respiratory epithelium of the bronchi is determined not only by local factors, but also by the severity of the course of rhinosinusite. The parallelism of cellular reactions occurring at different levels of the respiratory tract, as well as the relationship between changes in FVD indicators and the increasing severity and prevalence of allergic inflammation in the nasal cavity and paranasal sinuses (PNS) have been shown. There is clear evidence that irritation of the "asthmogenic zones" of the nasal cavity by polyps, pathological discharge or surgical instruments during surgery leads to increased impulses along the rhinobronchial reflex chain, which causes a violation of bronchial motility. Treatment of year-round AR with endonasal topical glucocorticosteroids (1 CS) does not always improve the course of BA, but reduces bronchial hyperreactivity, eosinophilia of oronchoalveolar lavage, and the concentration of nitric oxide and hydrogen peroxide in the condensate of exhaled air. The effectiveness of the pathogenesis of year-round af and Ьa is confirmed by the fact of improvement of nasal breathing during treatment of patients suffering from the edematous form of AR and BA with leukotriene receptor antagonists, which were initially intended to be used only as anti-asthmatic drugs. There are indications that surgical treatment of year-round AR in patients with BA, carried out after adequate drug preparation, significantly alleviates the course of BA. However, despite the existence of a large number of drugs for the treatment of AR in patients with bronchial asthma (GCS, leukotriene receptor antagonists), there is still no clarity in the choice of one or another drug. There are no clear recommendations on what diagnostic measures should be carried out before prescribing a certain endonasal topical steroid or leukotriene receptor blocker. There is no clear information on whether and to what extent a particular drug, for example, zafirlukast (acolate), is able to reduce the volume of polypous tissue in a certain category of patients. There are no data on how the velocity indices of FVD change in patients with year-round AR and bronchial asthma after the appointment of endonasal topical steroids.

Conclusions

1. The prescription of drug treatment for year-round allergic rhinosinusitis in patients with bronchial asthma must be preceded by a pulmonary and allergological examination. The choice of the most effective drug for the treatment of year-round allergic rhinosinusitis in patients with bronchial asthma is determined not only by the condition of the nasal cavity and the ONP, but also by the allergological status of patients and the severity of bronchial asthma.
2. Based on the examination of 100 patients with a combination of year-round AR and bronchial asthma in the ENT clinics and faculty therapy of the I.M. Sechenov Moscow Medical Academy, it was found that most often year-round AR precedes bronchial asthma (62% of patients), less often, bronchial asthma precedes year-round AR (26% of patients), the

simultaneous occurrence of the two above-mentioned diseases is observed only in 12% of patients.

3. The edematous form of AR is often combined with mild atopic BA, and the polypous form of AR is often combined with moderate to severe infection-dependent BA.

4. According to objective examination using anterior active rhinomanometry, treatment with antileukotriene drugs in patients with a combination of polypous AR and BA in 45% of cases leads to a decrease in the volume of polypous tissue. Moreover, in 35% of patients, a decrease in the volume of polyps leads to a significant improvement in nasal breathing, which allows avoiding surgical intervention.

References

1. Arnal JF, Didier A, Rami J, et al. Nasal nitric oxide is increased in allergic rhinitis // Clin Exp Allergy. 2017. - Vol. 27. - P.358-362.
2. Allergic rhinitis and its Impact on Asthma (ARIA) in collaboration with the World Health Organisation// Allergy. 2022. - Vol.57. - P. 23-24.
3. Bacharier L. B., Jabara H., and Geha R. S. Molecular mechanisms of immunoglobulin E regulation // Int. Arch. Allergy Immunol. 2018. — Vol. 115.-P.257.
4. Choi, J. W., Salomova, F. I., Razikova, I. S., Mirraximova, M. H., Ibragimova, S. A., & Yunusjanovna, N. N. (2020). The prevalence of symptoms of allergic diseasesin children residing in industrialregions of Uzbekistan. International Journal of Psychosocial Rehabilitation, 24(4), 2105-2115.
5. DS, K. (2022). PREVALENCE OF ALLERGIC DISEASES IN CHILDREN UNDER HOT CLIMATIC CONDITIONS. In Materials of International Scientific-Practical Conference.«Only English: Topical Issues of Healthcare.
6. Ibodullaevna, S. F., Rustamovna, K. S., Gairatovna, A. D., & Abdurakhmonovna, S. H. (2022). PREVALENCE AND RISK FACTORS OF ALLERGIC DISEASES IN CHILDREN IN HOT CLIMATIC CONDITIONS. Art of Medicine. International Medical Scientific Journal, 2(3).
7. Imamova, A. O., & Toshmatova, G. O. (2023). Protecting works and hygienic assessment of nutrition of preschool children in Tashkent. European International Journal of Multidisciplinary Research and Management Studies, 3(02), 47-50.
8. Imamova, A. O., Salomova, F. I., Axmadalieva NO, N. D., Toshmatova, G. A., & Sharipova, S. A. (2022). Ways to optimize the formation of the principles of a healthy lifestyle of children. American Journal of Medicine and Medical Sciences, 12(6), 606-608.
9. Jalolov, N. N., & Imamova, A. O. (2023). The Role of Nutrition in the Management of Chronic Hepatitis. European International Journal of multidisciplinary research and management studies, 3(02), 28-34.

10. Jalolov, N. N., Sobirov, O. G., Kabilzhonova, S. R., & Imamova, A. O. (2023). The role of a healthy lifestyle in the prevention of myocardial infarction. Neo Sci Peer Rev J, 9, 8-14.
11. Jalolov, N. N., Sultonov, E. Y., Imamova, A. O., & Oblokulov, A. G. (2023). Main factors of overweight and obesity in children. Science Promotion, 1(2), 2-4.
12. Khobiljonova, S. H. THE ROLE OF SPORTS IN THE FORMATION OF A HEALTHY LIFESTYLE AMONG YOUNG PEOPLE Yuldasheva FU Tashkent Medical Academy, Uzbekistan Imamova AO.
13. Kobiljonova, S. R., & Jalolov, N. N. (2023). Reproductive and perinatal outcomes born by caesarean section.
14. Kobiljonova, S. R., Jalolov, N. N., Sharipova, S. A., & Mirsagatova, M. R. (2022). COMBINED SKIN AND RESPIRATORY MANIFESTATIONS OF FOOD ALLERGY IN CHILDREN.
15. Kobiljonova, S. R., Jalolov, N. N., Sharipova, S. A., & Tashmatova, G. A. (2023). Clinical and morphological features of gastroduodenitis in children with saline diathesis. American Journal of Pedagogical and Educational Research, 10, 35-41.
16. Kobiljonova, S. R., Jalolov, N. N., Sharipova, S. A., & Tashmatova, G. A. (2023). Clinical and morphological features of gastroduodenitis in children with saline diathesis. American Journal of Pedagogical and Educational Research, 10, 35-41.
17. Kobiljonova, S., Sultonov, E., Sultonova, D., Oblokulov, A., & Jalolov, N. (2023). CLINICAL MANIFESTATIONS OF GASTROINTESTINAL FOOD ALLERGY. Евразийский журнал медицинских и естественных наук, 3(5), 142-148.
18. Niyazova, O. A., & Imamova, A. O. (2023). Improving the organization of the provision of medical services and the Digital environment. European International Journal of Multidisciplinary Research and Management Studies, 3(02), 41-46.
19. Sadullayeva, X. A., Salomova, F. I., & Mirsagatova, M. R. (2023). Problems of Pollution of Reservoirs in the Conditions of Uzbekistan. Miasto Przyszłości, 33, 102-106.
20. Salomova, F. I. (2022, November). Formation of the principles of a healthy lifestyle in preschool children. In Uzbekistan-Japan International Conference «Energy-Earth-Environment-Engineering.
21. Salomova, F. I. (2022, November). Problems of atmospheric air pollution in the Republic of Uzbekistan and the ways of their solution. In Uzbekistan-Japan International Conference «Energy-Earth-Environment-Engineering.
22. Salomova, F. I., Mirrakhimova, M. K., & Kobilzhonova, S. R. (2022). Influence of environmental factors on the development of atopic dermatitis in children. In European journal of science archives conferences series.

23. Salomova, F. I., Rakhimov, B. B., Jalolov, N. N., Sultonov, E. Y., & Oblakulov, A. G. (2023). Atmospheric air of the city of Navoi: quality assessment. British Journal of Global Ecology and Sustainable Development, 15, 121-125.
24. Salomova, F. I., Sharipova, S. A., Toshmatova, G. O., Yarmukhamedova, N. F., Mirsagatova, M. R., & Akhmadalieva, N. O. (2020). Psychoemotional state of the universities' teaching staff in Uzbekistan. Indian Journal of Forensic Medicine and Toxicology, 14(4), 7984-7994.
25. Salomova, F., Akhmadalieva, N., Sadullayeva Kh, A., Imamova, A., & Nigmatullayeva, D. Z. (2023). Hygienic characteristics of the social portrait, conditions and lifestyle of infectious diseases doctors. JournalNX-A Multidisciplinary Peer Reviewed Journal, 9(2), 163-7.
26. Salomova, F., Sadullaeva, K., Samigova, N., & Sadirova, M. (2022). Study of regional features of dynamics of acute intestinal diseases in the Republic of Karakalpakstan (Livorno, Italy конф.). Diss. Livorno, Italy.
27. Salomova, F., Sadullayeva, H., Sherkuzieva, G., & Yarmuhamedova, N. F. (2020). State of atmospheric air in the republic of Uzbekistan. Central Asian Journal of Medicine, 2020(1), 131-147.
28. ShR, K., Mirrakhimova, M. H., & Sadullaeva, H. A. (2022). Prevalence and risk factors of bronchial asthma in children. Journal of Theoretical and Clinical Medicine, 2, 51-56.
29. Yarmukhamedova, N. F., Matkarimova, D. S., Bakieva, S. K., & Salomova, F. I. (2021). Features of the frequency of distribution of alleles and genotypes of polymorphisms of the gene Tnf-A (G-308a) in patients with rhinosinusitis and the assessment of their role in the development of this pathology. International Journal of Health and Medical Sciences, 4(1), 164-168.
30. Yaxyoyevich, Z. S., & Husanovna, T. M. (2024). Chronic Liver Diseases And Humoral Factors Of Immunity.
31. Ахмадалиева, Н. О., Саломова, Ф. И., Садуллаева, Х. А., Шарипова, С. А., & Хабибуллаев, С. Ш. (2021). Заболеваемость преподавательского состава ВУЗа технического профиля. Oriental renaissance: Innovative, educational, natural and social sciences, 1(10), 860-871.
32. Жалолов, Н. Н., Нуриддинова, З. И., Кобилжонова, Ш. Р., & Имамова, А. О. (2022). Главные факторы развития избыточного веса и ожирения у детей (Doctoral dissertation, Doctoral dissertation, O 'zbekiston Respublikasi Sog 'liqni Saqlash vazirligi, Toshkent tibbiyot akademiyasi, Koryo universiteti "Atrof muhit muhofazasining dolzarb muammolari va inson salomatligi" xalqaro ishtirok bilan Respublika 9-ilmiy-amaliy anjumani materiallari to 'plami 153 bet).

33. Жалолов, Н., Зокирходжаев, Ш. Я., & Саломова, Ф. И. (2022). Сурункали гепатит билан касалланган беморларнинг ҳақиқий овқатланишини баҳолаш.«Тиббиётдаги замонавий илмий тадқиқотлар: долзарб муаммолар, ютуқлар ва инновациялар». In мавзусидаги халқаро илмий-амалий конференция.(2022, May).
34. Кобилжонова, Ш. Р., Жалолов, Н. Н., & Журабоев, М. Т. (2022). Тугри овкатланиш спортчилар юкори натижалари гарови.
35. Кобилжонова, Ш. Р., Миррахимова, М. Х., & Садуллаева, Х. А. (2022). Распространенность и факторы риска бронхиальной астмы у детей. Журнал теоретической и клинической медицины, (2), 51-56.
36. Кобилжонова, Ш. Р., Миррахимова, М. Х., & Садуллаева, Х. А. (2022). Значение экологических факторов при бронхиальной астме у детей.
37. Миррахимова, М. Х., Нишонбоева, Н. Ю., & Кобилжонова, Ш. Р. (2022). Атопик дерматит билан касалланган болаларда панкреатик етишмовчиликни коррекциялаш.
38. Садуллаева, Х. А., Саломова, Ф. И., Мирсагатова, М. Р., & Кобилжонова, С. Р. (2023). Проблемы загрязнения водоемов в условиях Узбекистана.
39. Саломова, Ф. И. (2001). Оценка состояния здоровья и физического развития детей, поступающих в детские дошкольные учреждения. Ж. Патология, (4), 21-23.
40. Саломова, Ф. И. (2008). Особенности физического развития школьников с нарушениями осанки. Вестник Санкт-Петербургской государственной медицинской академии им. ИИ Мечникова, (4), 48-50.
41. Саломова, Ф. И. (2009). Функциональное состояние опорно-двигательного аппарата школьников с нарушениями осанки. Травматология и ортопедия России, (1), 70-73.
42. Саломова, Ф. И. (2009). Характеристика физического развития школьников с нарушениями осанки. Вестник Новосибирского государственного университета. Серия: Биология, клиническая медицина, 7(3), 68-71.
43. Саломова, Ф. И. (2010). Гигиенические основы профилактики нарушений осанки и начальных форм сколиозов у детей и подростков. Автореф. дисс….. докт. мед. наук. Ташкент.
44. Саломова, Ф. И., & Тошматова, Г. О. (2012). Эпидемиология мастопатии и особенности заболеваемости женщин, страдающих мастопатией. Врач-аспирант, 52(3.1), 222-228.
45. Саломова, Ф. И., Садуллаева, Х. А., & Самигова, Н. Р. (2022). Загрязнение атмосферы соединениями азота как этиологический фактор развития СС заболеваний г. ООО" TIBBIYOT NASHRIYOTI MATBAA UYT.

46. Саломова, Ф. И., Садуллаева, Х. А., Миррахимова, М. Х., Кобилжонова, Ш. Р., & Абатова, Н. П. (2023). Загрязнение окружающей среды и состояние здоровья населения. Yosh olimlar tibbiyot jurnali, 1(5), 163-166.
47. Саломова, Ф., Садуллаева, Х., & Кобилжонова, Ш. (2022). Гигиеническая оценка риска развития аллергических заболеваний кожи у детского населения. Актуальные вопросы профилактики стоматологических заболеваний и детской стоматологии, 1(01), 88-91.
48. Шеркузиева, Г. Ф., Саломова, Ф. И., & Юлдашева, Ф. У. (2023). Результаты санитарно-химических исследований воды.
49. Jalolov, N. N., Imamova, A. O., & Sultonov, E. Y. (2023). Proper nutrition of athletes, martial arts. Pridobljeno, 1(8), 2024.
50. Imamova, A. O., Ahmadalieva, N. O., & Bobomurotov, T. A. (2022). Health states of children and ways to optimize the formation of the principles of a healthy lifestyle. Eurasian Medical Research Periodical, 8, 125-128.
51. Bobomuratov, T. A., & Imamova, A. O. K. (2023). Forms and methods for forming a healthy lifestyle in children. Academic research in educational sciences, (1), 19-23.
52. Imamova, A. O., & Soliyeva, L. O. (2022). Hygienic assessment of children's health in the orphanage (Doctoral dissertation,«ОБРАЗОВАНИЕ И НАУКА В XXI ВЕКЕ» Xalqaro ilmiy jurnal).
53. Bobomuratov, T. A., & Imamova, A. O. Q. (2023). MAKTABGACHA YOSHDAGI BOLALAR ORGANIZIMIDA VITAMIN VA MINERALLAR YETISHMASLIGINING AHAMIYATI. Academic research in educational sciences, (1), 24-30.
54. Манер, С.С., Шейх, А.А., Акида, И., и Анвар, О. ГИГИЕНИЧЕСКИЕ АСПЕКТЫ ИСПОЛЬЗОВАНИЯ МЕДИЦИНСКИХ КОЖ.
55. Imamova, A. O. K., Bobomurotov, T. A., & Akhmadaliyeva, N. O. (2023). IMPROVING THE HEALTH STATUS OF FREQUENTLY ILL CHILDREN IN PRE-SCHOOL EDUCATIONAL INSTITUTIONS AND THEIR PRINCIPLES OF HEALTHY LIFESTYLE. Academic research in educational sciences, 4(TMA Conference), 180-185.
56. Salomova, F. I., Imamova, A. O., Mirshina, O. P., & Voronina, N. V. (2023). HYGIENIC ASSESSMENT OF THE CONDITIONS OF WATER USE OF THE POPULATION OF THE ARAL REGION. Academic research in educational sciences, 4(TMA Conference), 968-973.
57. Ахмадалиева, НО, Саломова, ФИ, Садуллаева, КА, Абдукадирова, ЛК и Имамова, АО (2024). ИЗЪЯТО: Питание часто болеющих детей дошкольного возраста в организованных коллективах. В BIO Web of Conferences (т. 84, стр. 01011). EDP Sciences.

58. Mirsagatova, M. R. (2023). Features of the Microflora of the Gastrointestinal Tract in Chronic Inflammatory Diseases of the Upper Digestive Organs in Children.

59. Kobiljonova, S. R., Jalolov, N. N., Sharipova, S. A., & Mirsagatova, M. R. (2022). SPECTRUM OF CAUSE-SIGNIFICANT ALLERGENS CAUSING POLYNOSIS IN CHILDREN.