ISSN 2181-1008
DOI 10.26739/2181-1008

# ЖУРНАЛ

## гепато-гастроэнтерологических исследований

Ежеквартальный научно-практический журнал

№3.2 (том II) 2021

ISSN 2181-1008 (Online)

Научно-практический журнал
Издается с 2020 года
Выходит 1 раз в квартал

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Самаркандский государственный медицинский институт

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Журнал зарегистрирован в Узбекском агентстве по печати и информации

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## COMPREHENSIVE TREATMENT OF BRONCHIAL ASTHMA IN CHILDREN USING RESISTOL

**ANNOTATION**

Studied 78 children with varying degrees of bronchial asthma severity at the clinic of Hospital, Outpatient and Emergency Therapy Department of Andijan State Medical Institute in Andijan, aged 6-14 years. For prospective study we have formed two groups of patients: the first group of patients who received standard baseline therapy and placebo tablet (n = 35); the second group of patients (n = 43), who received along with baseline therapy, received the drug "Resistol". Administration of this drug suppresses the metabolism of corticoid hormones in the body, and the duration of their action increases. Our own studies have shown that in Group 1 we managed to reduce the dose of inhaled glucocorticosteroids by 13.5 ± 3.1%. A particularly valuable effect of impaired β2-adrenoreceptor sensitivity due to excessive use of salbutamol. The positive effect of the drug was a decrease in the number of daytime and nighttime attacks, an increase in absolute PSV values and a decrease in pronounced variability. ICC values were normalized more effectively in most patients. Thus, treatment with the drug "Resistola" not only contributed to more effective rehabilitation of children with bronchial asthma, including increased parameters of external respiratory function, but also had a favorable effect on the condition of the upper airways, contributing, apparently, to a decrease in the severity of allergic inflammation.

**Key words:** bronchial asthma in children, immunology, resistol

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## КОМПЛЕКСНОЕ ЛЕЧЕНИЕ БРОНХИАЛЬНОЙ АСТМЫ У ДЕТЕЙ, С ПРИМЕНЕНИЕМ ПРЕПАРАТА РЕЗИСТОЛ

**АННОТАЦИЯ**

Обследованы 78 детей с разной степенью тяжести бронхиальной астмы в поликлинике стационара, отделениях поликлиники и неотложной терапии Андижанского государственного медицинского института в возрасте 6-14 лет. Для проспективного исследования мы сформировали две группы пациентов: первая группа - пациенты, получавшие стандартную базовую терапию и плацебо (n = 35); вторая группа пациентов (n = 43), получавших наряду с базовой терапией препарат «Резистол». Прием этого препарата подавляет метаболизм кортикоидных гормонов в организме и продолжительность их действия увеличивается. Собственные исследования показали, что в 1-й группе нам удалось снизить дозу ингаляционных глюкокортикостероидов на 13,5 ± 3,1%, что особенно ценно при нарушении чувствительности β2-адренорецепторов в результате чрезмерного употребления сальбутамола. Положительным эффектом препарата было уменьшение количества дневных и ночных приступов, увеличение абсолютных значений ПСВ и уменьшение выраженной вариабельности. Значения ICC нормализовались более эффективно у большинства пациентов. Таким образом, лечение препаратом «Резистол» не только способствовало более эффективной реабилитации детей с бронхиальной астмой, но и повышению параметров функции внешнего дыхания. Кроме того, благоприятно

сказалось на состоянии верхних дыхательных путей, способствуя, по всей видимости, уменьшению выраженности аллергического воспаления.

**Ключевые слова:** бронхиальная астма у детей, иммунология, резистол.

**Introduction.** The problem of asthma continues to be relevant throughout the world, despite numerous studies and a sufficient amount of treatment and preventive measures. In childhood, bronchial asthma is one of the most common chronic diseases [1,2,3,8].

According to the results of a number of researchers, the prevalence of asthma in the Republic of Uzbekistan varies from 3.1% to 8.2%, which is due not only to the influence of external regional factors, but also to the use of various diagnostic methods [1]. However, as shown by virtually all studies conducted under the ISAAC (Intemacional Study of Astma and Allergy in Children) program in all regions of the planet, the true incidence of asthma was significantly higher than official statistics [7,8,9]. The discrepancies between official statistics on recruitment and the results of epidemiological studies are also associated with the underdiagnosis of bronchial asthma in different age groups.

Analysis of epidemiological studies in the city of Andijan showed that in the structure of the prevalence of allergic diseases, bronchial asthma is in 2nd place (5.6 + 0.03%), yielding to allergic rhinitis (12.7 + 0.19%) [1].

Despite the use of increasingly effective means for anti-inflammatory therapy of respiratory allergies, up to a third of patients continue to complain about the persistence of symptoms of the disease even when it is carried out in an adequate age dosage.

Unfortunately, treatment with inhaled corticosteroids, being the most effective one currently used, has a number of side effects, including depression of the hypothalamus-pituitary-adrenal cortex axis, the formation of local candidiasis, and others [4.9]. In this regard, one of the areas of pharmacotherapeutic research is the search for approaches aimed at reducing the dose of steroids used to achieve a sufficient clinical effect.

One of such approaches may be the joint appointment of traditional anti-inflammatory drugs - local corticosteroids and leukotriene receptor antagonist drugs, agents for systemic use in obstructive respiratory diseases, which are also known from the literature [5,6].

As an example, we chose the domestic drug "Resistol", the drug Resistol contains an extract from the seed-like Pelargonium sidoid (Pelargonium sidoides), which is home to South Africa.

It is known that with oral use of the extract, there was a decrease in the signs of the disease (non-specific symptoms of the disease that occur due to infection) and antioxidant properties were manifested.

In the course of in vitro studies, the following drug actions were confirmed:

- stimulation of non-specific protective mechanisms:
- stimulation of the oscillation frequency of the villi of the ciliary epithelium;
- modulation of the synthesis of interferon and anti-inflammatory cytokines;
- stimulation of the activity of NK cells;
- stimulation of phagocytosis, expression of adhesive molecules, chemotaxis

This message is devoted to determining the feasibility of using the drug "Resistol" against the background of standard therapy of bronchial asthma in children.

**Materials and methods:** Under our supervision in the clinic of the department of hospital, polyclinic and emergency treatment of the Andijan State Medical Institute based on ODMMTS Andijan there were 78 children with varying degrees of severity of bronchial asthma between the ages of 6-14 years. For a prospective study, we formed two groups of patients: the first group of patients who received standard basic therapy (n = 35); the second group of patients (n = 43) who received, along with a similar range of basic therapy, received the drug Resistol on a five-day schedule (1-day 1.0 ml, 2-day 1.5 ml, 3-day 2.0 ml, 4-day 2.5 ml, 5-day 3.0 ml. Intramuscularly) with a break of 1 day, 3 times. The duration of "Resistol" therapy was 15 days. The duration of the observation of the patients of the studied groups lasted for a year. In addition to age, the criteria for inclusion in the study group were verification of the diagnosis of bronchial asthma, mild, moderate, severe disease. The exclusion criteria from the study group were severe for the disease using systemic glucocorticoids for more than 6 months.

All observed patients received hydrocortisone as a basic therapy in the form of a metered-dose inhaler. Depending on the severity of asthma, the daily dose of the drug averaged 25-50 mg. All observed patients were given a short-acting β2-adrenomimetic - (salbutamol). In all cases, undesirable drug reactions were recorded. Against the background of the use of the drug "Resistol" we have not registered the side effects of the drug.

The survey included monitoring peak expiratory flow rate over the entire observation period, assessing the quality of life using a specially designed questionnaire, studying mucociliary clearance (MSC), β2-adrenoreceptor activity, and immune status parameters. The diagnosis of bronchial asthma was set according to international criteria on the basis of detecting reversible bronchial obstruction, confirmed in functional tests. The presence of specific sensitization to atopic allergens was detected by skin allergic testing methods.

To compare the peak expiratory flow rates in children of the experimental groups with the control, we used the standards developed earlier for the metropolitan area [8]. In terms of obtaining standards of mucociliary clearance, 30 children of the same sex and age were examined. Statistical processing of the obtained material was performed using the t-criterion of reliability of differences between the Student and Oyvin IA groups.

**Results and discussion.** According to the literature it is known that the effects of bronchodilation of the β-agonist and Resistol are additive. Treatment with Resistol reduces both the early and late phases of bronchoconstriction caused by antigens. It is known that in adults and children aged 2 to 14 years, treatment with Resistol significantly reduces the number of eosinophils in the respiratory tract (as measured in sputum) and in peripheral blood, while improving the clinical control of asthma. With the appointment of this drug, the metabolism of corticoid hormones in the body is suppressed, and the duration of their action increases.

Own studies have shown that in group 1 it was possible to reduce the dose of inhaled glucorticosteroids by 13.5 ± 3.1%. The positive effect of the use of the drug

was to reduce the number of day and night attacks, the increase in the absolute values of PSV and reduce the pronounced variability. The majority of the most normalized indicators MCC.

**Table 1.**

**Dynamics of indicators of peak expiratory flow rate and daily dose of IGCC in children during treatment**

| No | Of the group of treated patients | Qty children | Indicators of PSV (l / min) | | Average daily dose of IGS (mkg) | |
|---|---|---|---|---|---|---|
| | | | Before treatment | After treatment | Before treatment | After treatment |
| 1 gr . | Children who received basic therapy (hydrocortisone) | 35 | 190,0 ± 21,6 | 218,8±21,6 | 347,3± 23,6 | 299,5± 23,4 |
| 2 gr. | Children receiving basic therapy and "Resistol" | 43 | 199,3± 21,2 | 259,5 ± 24,4 <0,05 | 347,8±23,3 <0,05 | 229,9 ± 15,7 <0,001 |

Note: P - reliability of differences in performance between groups

From the presented own data it is clear that in the group of children who received, along with inhalation glucocorticosteroids, also Resistol, the steroid dose was reduced from 299.5 to 229.9 mcg / day, that is, by 24.7%.Ego difference was statistically significant (P <0.001). One of the criteria for the effectiveness of the treatment of bronchial asthma is to reduce the need for the use of inhaled (β2-adrenomimetics. Our studies have shown that in children who received the combined treatment with hydrocortisone and Resistol, the need for the use of salbutamol was reduced from 2.07 to 1.38 per day. This difference was highly statistically significant (P <0.001).

The average peak expiratory flow rate in children who received the drug Resistol, compared with children who received only traditional therapy of asthma, was 29.7% higher even with the statistical significance of these differences (P <0.05) .

If in children of the control group (group 3), the MCC index was 8.8 ± 0.2 min, then in patients with bronchial asthma before treatment it was 15.6 ± 0.4 min (P <0.001). During treatment with hydrocortisone, the index decreased to 13.7 ± 0.3 min (P <0.001), thus differing by 1.13 times compared with the initial parameter. However, this figure was 1.15 times higher than that of children with bronchial asthma, who received, along with hydrocortisone, propionate also Resistol.

**Table 2.**

**Dynamics of daily consumption requirements (β2-adrenomimetics per day for children during treatment)**

| No | of patients treated Qty children | Qty children (n) | Need to use (β2-adrenomimetics per/day (n) | |
|---|---|---|---|---|
| | | | Before treatment олечения | After treatment |
| 1 gr. | Children treated with basic therapy (hydrocortisones)) | 35 | 2,45 ±0,1 | 2,07 ±0,1 |
| 2 gr. | Children who received basic therapy and “Resistol”» | 43 | 2,52 ±0,1 | 1,38 ±0,1 <0,001 |

Note: P - reliability of differences in performance between groups.

In our work, we also studied the biological markers of the severity of the inflammatory process in allergic diseases [2]. The levels of low eosinophil (ESP) and high density (EWP) were studied. As a result of the combined anti-inflammatory therapy, a significant decrease in the activity of allergic inflammation was noted. Over the course of 3,4,5,6 months from the start of treatment, a definite decrease in ENP was detected in both groups. So, after 3 months from the start of therapy in patients of group 1, the level of ENP was 79.4 ± 13.0, whereas in group 2 it was 99.6 ± 13.8 per 1000 cells. 6 months after the combination therapy, the number of ENP in group 1 was 54.7 ± 12.5, in group 2 - 883.3 ± 11.2. It should be noted that if a significant difference in the levels of ESP and EEC after treatment was P <0.001. Regarding the absolute amount of EEC, it should be noted that before treatment, their levels in both groups were increased: in group 1 - 158.2 ± 17.1, in 2 - 163.3 ± 12.7. 3 months after the treatment, the number of EEC in patients of group 1 decreased to 129.4 ± 11.9, 2 groups - 145.8 ± 13.5.

**Conclusion.** Combined therapy of bronchial asthma with the use of the drug "Resistol" to a greater extent contributed to the reduction of allergic inflammation, which was manifested by a decrease in the absolute number of eosinophils, especially low density.

Thus, treatment with Resistol not only contributed to more effective rehabilitation of children with bronchial asthma, including an increase in the parameters of external respiratory function, but also favorably influenced the upper respiratory tract, contributing, apparently, to the reduction of allergic inflammation. The combined use of anti-inflammatory drugs and Resistol gives a pronounced effect in terms of improving the clinical condition of children, the normalization of immunological parameters in patients with bronchial asthma.

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