

Features of the Appearance of Psychosomatics in Children with Bronchial Asthma during a New Coronavirus Infection (Covid-19)

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Key words

Macro- and microelements, psychosomatic, bronchial asthma, children

Abstract

Purpose of the study. Will assess the psychosomatic state and optimize the treatment of children with bronchial asthma against the background of COVID-19.

Materials and methods. We examined 102 children aged 8 to 15 years who had COVID-19 patients with bronchial asthma. The sex ratio were: girls 48% (n=49), boys 52% (n=53).

We divided all the studied children into three groups: 1 - a group of children with BA who did not recover COVID-19 (n=58); 2 – group of children with BA who recovered from COVID-19 (n=44); group 3 - control (30 children), practically healthy children of the same age.

Results. The results of the study showed that in children with bronchial asthma on the background of COVID-19, the following were more often noted: stressful situations in society (for example, school change 32.15%). Psychosomatic status in children of the first and second groups of children were respectively: 36 and 46 points. In the studied children, in families, there were 1.5-2.0 times more conflict situations, quarrels between parents and other family members. These figures were higher compared to those of group 1 and healthy children. After the use of magnesium containing drug, the psychosomatic status in children of the first and second groups of children were 48 and 59 points, respectively.

Conclusion. Consequently, the leading type of psychosomatic disorder in the group under study consists in the denial of that information about external reality, which is disturbing and can lead to internal conflict. The presence of increased suggestibility is connected precisely with the action of the mechanism of denial.

1. Introduction

In the first instance of 2020, a corona virus pandemic started over the world. Numerous scientists recognized that this is a new type of virus. Together with adults, children also infected with the COVID-19.

Children with chronic pathology had a relatively difficult time with this infection. This was especially noticeable in children with bronchial asthma. [1,2,3,4].

During an exacerbation of bronchial asthma, children often experience anxiety, embarrassment,

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sadness and irritability, sometimes a feeling of fear of death. There is scientific evidence that anxiety-panic states during an exacerbation of asthma during a pandemic arose due to insufficient intake of certain minerals in the body. [3, 5,6].

The reason for the insufficient intake of minerals is the loss of appetite and the high energy consumption of the body during attacks of bronchial asthma. It is clear that COVID-19, due to the high energy consumption, disrupts the metabolism in the human body, as a result of which the diet is disturbed, all this leads to an energy imbalance. Violation of food intake in the body leads to a deficiency of macro- and microelements and vitamins. The main macronutrients: potassium, calcium, magnesium, chlorine, phosphorus, sulfur. The above listed minerals are involved in metabolic processes and are necessary for the normal functioning of all organs and systems. With COVID-19, the body is constantly losing minerals. To maintain a normal life of activity and the proper development of the child's body, it is necessary to replenish the deficit daily.

Macro- and microelements, participating in important processes in metabolism, function and ensure the digestibility of food. The lack of one or another mineral adversely affects the overall functioning of the body systems, the psychosomatic state of the child. [3, 4, 5,6].

Based on the above data led to the study of the role of the macronutrient magnesium in the treatment and prevention of COVID-19.

According to the results of numerous studies, there is a possibility of the effectiveness of magnesium, zinc, omega in the treatment and prevention of violations of the psychosomatic status in children against the

background of coronavirus infection with chronic somatic pathology (BA) too. [5,6,7,8].

Magnesium is one of the important micronutrients that occupies a subposition in the body for basic biochemical reactions, energy metabolism, protein and nucleic acid synthesis, and also has anti-inflammatory, antioxidant, antispasmodic effects and is involved in neuroprotection [2,3,4,5,6].

According to numerous studies, magnesium plays a big role in the development of depression and anxiety in children. Due to the excessive consumption of magnesium reserves in the body, depressive states intensify [2,7,8].

2. Purpose of the Study

Will assess the psychosomatic state and optimize the treatment of children with bronchial asthma against the background of COVID-19.

3. Materials and Methods

We examined 102 children aged 8 to 15 years who had COVID-19 patients with bronchial asthma. The sex ratio were: girls 48% (n=49), boys 52% (n=53).

We divided all the studied children into three groups: 1 - a group of children with BA who did not recover COVID-19 (n=58); 2 – group of children with BA who recovered from COVID-19 (n=44); group 3 - control (30 children), practically healthy children of the same age.

We determined the psychosomatic state of all the children under study and the level of introversion and extroversion using G. Aizenko's method. The definition of the psychosomatic status of the patient was determined using a questionnaire specially developed by us:

FULL NAME: _____

Age: _____ place of study/work _____

Questions	1	2	3	4	5
1. How much information do you know about COVID-19?	Very bad	bad	good	very good	I have no information
2. Are your family members infected with COVID-19?	No	Yes, everyone is sick.	Only the parents got sick	I just got sick	My grandparents got sick
3. Have you been infected with COVID-19?	Yes	No	Don't know		
4. How did you feel when your family members got sick with COVID-19?	Very bad	Badly	Fine	Very good	I do not care

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5. How did you feel when you got sick with COVID-19?	Very bad	Badly	Fine	Very good	I do not care
6. Do you suffer from coughing at night?	Yes, always	Often	Sometimes	No never	I do not care
7. Do you know about your illness?	Very bad	Badly	Fine	Very good	I do not care
8. Do you cough because of illness?	Yes, always	Often	Yes sometimes	No never	No I don't care
9. How do you feel if you constantly cough?	Too bad I feel useless	I'm disappointed in myself	I don't trust myself at all	I'm nervous	I don't care.
10. Does your illness (bronchial asthma) undermine your self-confidence?	I'm upset, I'm angry with myself	I don't know, I'm always nervous	I don't trust myself at all	I'm not very sure of myself	I believe in myself.
11. Does your illness (bronchial asthma) bother you when you exercise?	It's so exhausting, I can't exercise at all	Not always	Destructive but not a problem	It doesn't bother me	I don't notice it.
12. How do you feel if your illness bothers you when you exercise?	Very bad, unnecessary	I'm disappointed in myself	I don't trust myself at all	i'm nervous	I don't care.
13. Can you feel or detect attacks of illness ahead of time?	No, because I don't believe in myself at all	I can't give a definite answer	i'm always nervous	I can't give a clear answer, I'm not very sure of myself.	I can't give a definite answer, but I believe in myself
	Very bad, unnecessary, don't want to use my drugs	I don't trust myself at all, I don't want to use my drugs	I'm mad at myself, I use my drugs under duress	I'm nervous but take my medicine quickly	I don't care, I use the medicine immediately
14. How do you behave during an attack of illness?	Very bad, unnecessary, don't want to use my drugs	I don't trust myself at all, I don't want to use my drugs	I'm mad at myself, I use my drugs under duress	I'm nervous but take my medicine quickly	I don't care, I use the medicine immediately
15. Do you wake up at night from an attack of your illness? How do you feel?	When I sleep	Spring, autumn, cold	When I get angry	When my parents or siblings fight at home	When I run, when I jump
16. In what cases are the attacks of the disease intensified?	I do not care	I dont know	I am interested	No	I know
17. Do you know that there is a school of "bronchial asthma"?	No	I am not interested	I do not care	Sometimes	yes always
18. Do you attend Asthma School?	I do not care	I dont know	I am interested	No	I know
19. Did you know that there are many other children with asthma?	I will be very happy	Only I have this disease	No, my asthma is worse than theirs.	i will be sad	I do not care

Mother's signature:

The results were evaluated as follows:
 25-45 points or less - If your child scored 20 points or less, this means that he has very low self-esteem or low self-esteem, this situation means that you need to completely change your attention to the child, attitude

towards the child, some changes in medical procedures, in addition, monitor the regular intake of medicines by your child, strictly following the course of treatment prescribed by your doctor and neuropsychiatrist.

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45-55 points or more - if your child has a score of 28 or higher, this means that he has low self-confidence or low self-esteem, this situation means that you need to change your attention to the child, your attitude towards the child and some changes in medical procedures, in addition, make sure that your child takes medication regularly, following the course of treatment prescribed by the doctor and neuropsychiatrist.

65 points or more - congratulations!!! You are doing very well with your child. First of all, it depends on your child's trust and acceptance of the events taking place around him, keep up the good work, and soon you will reach great heights.

All sick children (Group 1 and 2, n=87) were added to the treatment regimen with magnesium containing drug, 1 tablet 2-3 times a day for 30 days.

To correct treatment, we determined the level of magnesium in the blood serum before treatment and 42 days after treatment.

4. Research Results and Discussion

The results of our study showed that in patients with bronchial asthma on the background of COVID-19,

the following were more often noted: stressful situations in society (for example, changing school 32.15%). Psychosomatic status in children of the first and second groups of children were respectively: 36 and 46 points. In the studied children, in families, there were 1.5-2.0 times more conflict situations, quarrels between parents and other family members. These figures were higher compared to those of group 1 and healthy children. After the use of magnesium containing drug, the psychosomatic status in children of the first and second groups of children were 48 and 59 points, respectively.

And we also paid attention to the fact that before receiving magnesium preparations, introversion was noted in children who had COVID-19 against the background of bronchial asthma, and in children who did not suffer COVID-19, extraversion was mainly noted. The children of 2nd group were characterized by more isolation, irritability and fear. Children of 1st group were characterized by an adequate response to exacerbation of the disease. After prescribing magnesium supplements in patients of the 2nd group, conflict situations in the family (noted by the child) decreased by 1.3-1.5 times. (Table 1.).

Table 1.
Psychoemotional state children under study
before and after treatment

Group	introversion extraversion		introversion extraversion	
	Before	after	Before	After
1st group (n=55)	32,77%	30,43%	67,23%	69,57%
2nd group (n=32)	71,53%	59,34%	28,47%	40,72%

Note: * - significant in relation to control ($p < 0.05$)

According to the scale of "extraversion - introversion" in children with BA on the background COVID-19 (2nd group), before treatment, introversion prevailed, which amounted to 71.53%, and extroversion was only in 28.47%. In patients of group 1, intraversivity

was lower than in patients of group 2 - 67.23%. After treatment, in children with BA who underwent COVID-19 (group 2), introversion decreased and amounted to 59.34%, and the same figure was 30.43% in group 1 of children ($p < 0.05$).

Table 2.
The state of magnesium in blood serum in children before and after treatment

Group	Magnesium level (mmol/l) in blood serum	
	Before	After
1st group (n=55)	0,41 - 0,57*	0,7 - 0,78*
2nd group (n=32)	0,43 - 0,55*	0,68 - 0,7*
Control (n=40)	0,7-0,86*	

Note: * - significant in relation to control ($p < 0.05$)

As can be seen from Table 2, in the studied patients, the level of magnesium in the blood serum

before treatment showed a two-fold decrease (in children from 7 to 15 years old, the norm is 0.68 - 0.88 mmol / l).

After treatment, the amount of magnesium in the blood serum was characteristic for both groups: 0.7-0.78 and 0.68-0.7 mmol/L. ($p < 0.05$) (Table 2).

The result of the research showed that the decrease in the amount of magnesium in the peripheral blood did not depend on the transferred coronavirus infection.

5. Conclusion

Consequently, the leading type of psychosomatic disorder in the group under study consists in the denial of that information about external reality, which is disturbing and can lead to internal conflict. The presence of increased suggestibility is connected precisely with the action of the mechanism of denial.

In children who were dominated by sensitivity, anxiety, compassion and empathy, low self-esteem and frequent autonomic disorders - after the use of a magnesium-containing drug, the severity of introversion was already slightly higher than in asthma patients who had not recovered from COVID-19, but indicators of anxiety, suspiciousness, sympathy and empathy, low self-esteem and frequent autonomic disorders remained unchanged.

Conflict of interests.

The authors declare no conflict of interest.

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