American Journal of Medicine and Medical Sciences 2022, 12(12): 1267-1268
DOI: 10.5923/j.ajmms.20221212.20

Correction of the Treatment of Psychosomatic Diseases in Children with Bronchial Asthma on the Background of COVID-19

Abdujalilova M. Sh., Khalmatova B. T.

Tashkent Medical Academy, Uzbekistan

Abstract This article is devoted to such an urgent problem of pediatrics and allergology - bronchial asthma in children. The article compares the capabilities of modern methods for the study of microelements (magnesium) in the blood, and also presents data on the assessment of psychosomatic disorders in children with bronchial asthma.

Keywords Bronchial asthma, Children, COVID-19, Microelements, Psychosomatics

1. Introduction

The COVID-19 pandemic has affected not only the adult population of the planet, but, unfortunately, children as well. Coronavirus in people with chronic somatic diseases such as bronchial asthma (BA) has caused many people, especially children, to have an impaired psychological status. It is known that, during attacks of bronchial asthma, a teenager often experiences anxiety, embarrassment, sadness and irritability, sometimes a feeling of fear of death [3]. There are suggestions that anxiety-panic conditions in children with Bronchial asma during the pandemic arose due to deficiency of certain mineral elements and vitamins [5,6].

In recent years, scientists have begun to actively study the role of macro and micronutrients, especially magnesium, in the treatment and prevention of COVID-19. There are many scientific studies on the effectiveness of trace elements (zinc and magnesium), omega-3 in the treatment and prevention of BA. Deficiency of macro and microelements, including zinc, magnesium in the body is a risk factor for infection with COVID-19. Their normal intake through supplementation may reduce the risk of clinical progression of COVID-19 and help reduce anxiety-aggression in children [1,6,9].

Magnesium is considered an essential trace element, which occupies a subposition in the body for the main biochemical reaction [3], energy metabolism, protein and nucleic acid synthesis [10], in addition to these functions, magnesium has anti-inflammatory [4], antioxidant [10], antispasmodic effects [5,6] and neuroprotection [2].

In addition, there are scientific data on the association of magnesium with depression and anxiety [2]. Consequently, the depletion of magnesium reserves in the body leads to increased depression [7,8,9,10].

Purpose: to study the effectiveness of magnesium in the treatment of bronchial asthma in children against the background of COVID-19.

Received: Nov. 30, 2022; Accepted: Dec. 13, 2022; Published: Dec. 14, 2022
Published online at http://journal.sapub.org/ajmms

2. Materials and Methods

We studied 86 children aged 7 to 12 years old who had COVID-19 during an exacerbation of asthma. The gender ratio was: girls 42% (n=36), boys 58% (n=50). All children were divided into three groups: 1 - a group of children with BA who did not have COVID-19; 2 - a group of children with BA who had been ill with COVID-19; Group 3 - control group of 40 children who did not have an allergic burden and signs of disease at the time of examination.

Prior to the start of treatment, the level of magnesium microelement in blood serum was checked in all children. Determination of the psychosomatic state was carried out using a questionnaire specially developed by us.

3. Results and Discussion

The data obtained showed that in children with AD, such factors as: stressful situations in society (for example, a change of school) were more often noted. Conflict situations in the family were 1.5-2.0 times more likely to be noted by the child than by their parents, and they were more pronounced in groups of children with BA compared with healthy peers. According to the “extroversion-introversion” scale, introversion prevailed in children with BA who had COVID-19 (up to 72%), and only 28% and 35% (respectively, in groups I and III) had a tendency to extraversion. Introversion - in the course of the disease with

worsening dynamics (diagnosed by us with an increase in the frequency, duration of asthma exacerbation against the background of COVID-19); with an unsatisfactory state of adaptation in patients with BA was 7 points (from 6 to 9 points), with positive dynamics of the disease, a satisfactory and stressful state of adaptation - the median was 10 points, interquartile 9-12 points and in the group of healthy adolescents the median was 15 points, inter quartile 11-17 points ($p<0.05$).

Thus, introversion was more typical for children who had COVID-19 against the background of BA, while extroversion was mainly recorded for children with BA without COVID-19. Children of group II were more withdrawn, irritable, and often showed fear. Children of group I responded adequately to the exacerbation of the disease.

The results of the study of the amount of magnesium in the blood serum showed its sharp decrease in children of groups I and II, respectively, 0.1 and 0.3 mmol/l (normally 0.7-0.9 mmol/l) ($p<0.05$). If in children of group II the level of magnesium in serum was reduced by 2.2 times, then in children of group I by 5.6 times ($p<0.001$).

The study showed that the decrease in magnesium levels did not depend on the previous coronavirus infection. After the use of preparations containing magnesium, the level of magnesium in the peripheral blood significantly increased in all children with BA ($p<0.05$).

4. Conclusions

Thus, in children who suffered COVID-19 against the background of BA, the course of the disease was more severe, the degree of introversion was higher than in BA patients who did not recover from COVID-19. This was especially noticeable among sensitive, anxious, suspicious children, with a developed sense of responsibility, compassion and empathy, as a rule, with low self-esteem and frequent vegetative disorders.

Considering that in children with asthma, regardless of the coronavirus infection, the level of magnesium at the time of an exacerbation of the disease is low, we suggest administering preparations containing magnesium, which will help improve adaptation processes.

REFERENCES

[1] Abiri, B., Vafa, M., 2020. Effects of vitamin D and/or magnesium supplementation on 5. https://doi.org/10.1186/s13063-020-4122-9.

[2] Bachnas, M.A., Akbar, M.I.A., Dachlan, E.G., Dekker, G., 2019. The role of magnesium sulfate (MgSO4) in fetal neuroprotection. J. Matern. Fetal Neonatal Med. 1-13 https://doi.org/10.1080/14767058.2019.1619688.

[3] Choi J. W. et al. The prevalence of symptoms of allergic diseasesin children residing in industrialregions of Uzbekistan // International Journal of Psychosocial Rehabilitation. – 2020. – T. 24. – №. 4. – C. 2105-2115.

[4] Güzel, A., Doˇgan, E., Türkçü, G., Kuyumcu, M., Kaplan, ˙I., Çelik, F., Yıldırım, Z.B., 2019. Dexmedetomidine and magnesium sulfate: a good combination treatment for acute lung injury? J. Invest. Surg. 32, 331–342. https://doi.org/10.1080/ 08941939.2017.1422575.

[5] Han, F., Xu, L., Huang, Y., Chen, T., Zhou, T., Yang, L., 2018. Magnesium sulphate can alleviate oxidative stress and reduce inflammatory cytokines in rat placenta of intrahepatic cholestasis of pregnancy model. Arch. Gynecol. Obstet. 298, 631–638. https://doi.org/10.1007/s00404-018-4850-1.

[6] Mirrahimova M. K. et al. Bronchial asthma: prevalence and risk factors in children living in the industrial zones of the Tashkent region // Central Asian Journal of Medicine. – 2020. – T. 2020. – №. 1. – C. 29-35.

[7] Khalmatova B. T., Tashmatova G. A., Mirsalikhova N. K. Modern methods for diagnosing the function of external respiration in children with bronchial asthma. – 2021.

[8] Khalmatova B.T., Tashmatova G.A., Shakarova M.Sh. 2021. PSYCHOSOMATIC FEATURES OF CHILDREN SUFFERING WITH BRONCHIAL ASTHMA // J. A new day in medicine 6(38/1); http://repository.tma.uz/xmlui/handle/1/1110.

[9] Ohyama, T., 2019. New aspects of magnesium function: a key regulator in nucleosome self-assembly, chromatin folding and phase separation. Int. J. Mol. Sci. 20 https://doi.org/10.3390/ijms20174232.

[10] Ozen, M., Xie, H., Shin, N., Al Yousif, G., Clemens, J., McLane, M.W., Lei, J., Burd, I., 2020. Magnesium sulfate inhibits inflammation through P2X7 receptors in human umbilical vein endothelial cells. Pediatr. Res. 87, 463–471. https://doi.org/10.1038/s41390-019-0557-7.

[11] Rochelson, B., Dowling, O., Schwartz, N., Metz, C.N., 2007. Magnesium sulfate suppresses inflammatory responses by human umbilical vein endothelial cells (HUVECs) through the NFkappaB pathway. J. Reprod. Immunol. 73, 101–107. https://doi.org/10.1016/j.jri.2006.06.004.