

## NEBULIZER THERAPY: PECULIARITIES OF ITS USAGE DURING COVID-19 PANDEMICS ACCORDING TO THE POINT OF VIEW OF GLOBAL INITIATIVES

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**Background.** Nebulizer therapy (NT) is recommended for the treatment of respiratory diseases by the number of professional organizations (European Respiratory Society, International Society for Aerosols in Medicine, American Association for Respiratory Care, Global Initiative for Asthma (GINA), Global Initiative for Chronic Obstructive Lung Disease, Irish Thoracic Society). Temporary GINA guidelines on the treatment of bronchial asthma (BA) during COVID-19 state that the nebulizers can transmit viral particles up to 1 m, which is accompanied by the risk of the infection transmission to other patients and medical workers. However, in this document there is no reference, which proves this information. **The aim.** To assess the safety of NT usage during COVID-19 pandemics according to the guidelines and consensus documents. **Materials and methods.** Analysis of guidelines and available scientific literature on this topic. **Results and discussion.** K. Tranet al. (2012) on the basis of data on the severe acute respiratory syndrome (SARS) made a conclusion that the significant evidence on the risk of virus transmission, associated with nebulizers, is absent. Analysis of the air around the patient, who undergoes NT, did not reveal any signs of viral infections with the help of polymerase chain reaction (Wan G.H. et al., 2004). So, NT seems to be characterized by the lower risk of infection transmission than other aerosol-generating procedures, however, generation of viral aerosol is possible in close contact. British thoracic society in its document (2020) states that NT does not lead to the formation of virus-containing aerosol, because the aerosol forms in the nebulizer chamber, and not from the patient. Current British guidelines on COVID-19 infection prevention do not list nebulizers among potential sources of virus transmission. The guidelines of The National Institute for Health and Care Excellence (NICE) state that during pandemics it is necessary to continue to use previously administered inhalational corticosteroids, because the termination of their usage can increase the risk of BA exacerbation, whereas evidences of the increased risk of coronavirus infection on their background are absent. This document recommends to clean inhalation devices thoroughly and not to share them with others. With the aim of minimization of risk of medical workers' infection during NT they should use individual protection measures (N95 respirator or face mask, if the respirator is unavailable, eye-protecting goggles, gloves and robe). Doors in the room of NT should be closed. During NT medical personnel should keep the safe distance ( $\geq 1.8$  m). For the best protection during NT in the outpatient settings it is reasonable to have individual sets for NT for each family member; to clean the devices thoroughly after each procedure and to use one-dose drug containers. Solutions for nebulization must be sterile. For the basic therapy of BA one can use Bufomiks Easyhaler, Budesonid Easyhaler, Formoterol Easyhaler («Orion Pharma»), for exacerbations' treatment – Nebuflyuzon, Nebutamol, Derkast («Yuria-Pharm»). **Conclusions.** 1. Usage of NT according to the indications is allowed during the COVID-19 pandemics. 2. Nebulization does not lead to the formation of virus-containing aerosol. 3. During the procedure protective measures for the medical workers are obligatory, because the close contact during NT can be accompanied by the risk of the viral transmission. 4. Usage of NT at home is a choice, which must not be questioned or discussed.

**Key words:** COVID-19, nebulizer therapy, asthma control.