New Approaches in the Treatment of Respiratory Insufficiency in Neonates

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Abstract

In this study, 67 newborns receiving artificial respiration, who were diagnosed as having respiratory distress syndrome, were divided into 2 groups, were examined, and were treated. The first group (n = 33) received standard treatment plus Mucosa compositum sublingually, and the second group (n = 34) received only standard therapy. With the therapy provided, there was a 1.3-fold decrease in the duration of artificial respiration in the neonates in the Mucosa compositum group.

Keywords: neonates, respiratory insufficiency, respiratory distress syndrome, artificial respiration

Introduction

The successes that have been achieved in delivering resuscitation aid to neonates who are in critical states have mainly been brought about by the introduction of protocols and standards and by a comprehensive approach to therapy. However, intensive therapy for respiratory disorders remains a difficult problem, especially for neonates with respiratory distress syndrome (RDS).

One new approach for solving this problem is the use of bioregulatory combination medications. In this study, the antihomotoxic medication Mucosa compositum (Heel, Baden-Baden, Germany) was applied in the treatment of RDS. The literature describes the use of this medication in neonates with dysbiotic disorders; in infants and in older children, as an efficacious antitussive agent; and in combination therapy for bronchial asthma.† The interest in this bioregulatory combination medication arises from its composition, which is based on a porcine mucosa extract, catalysts, and substances of vegetable and mineral origin. All components of the formulation are represented at high levels of dilution and do not possess any potential toxic or allergic effect.

In terms of its action, the product is postulated to have anti-inflammatory, spasmolytic, reparative, vascular, and immunomodulating effects. Mucosa compositum is thought to assist the passage of mucus and has a drainage effect, reduces dyspnea and cyanosis and normalizes the respiration rhythm, reduces the number of attacks of coughs and of coughing instances in a single attack, prevents the process of respiratory distress from becoming chronic, and acts on the entire respiratory tract (upper, middle, and lower).

The objective of the present study was to evaluate the efficacy of Mucosa compositum in the combination treatment of respiratory disorders.

Patients and methods

This study included 67 neonates under observation. All patients were similar in terms of sex, age, and week of gestation; they received standard treatment for RDS (i.e., correction of hemodynamic parameters and administration of surfactant, antibiotics, and infusion therapy). Thirty-three were included in the treatment group (i.e., newborns who received standard treatment plus Mucosa compositum for respiratory disorders), and 34 were included in the control group (i.e., newborns who received only standard treatment for respiratory disorders).

The inclusion criteria included premature infants in the first 24 hours of life, a gestational age of 36 weeks or younger, a body mass of 900 g or greater, and a clinical and/or X-ray diagnosis of RDS. The exclusion criteria included congenital developmental defects, periventricular hemorrhaging at level 2 or greater, and clear symptoms of intrauterine infection.

In the antihomotoxic treatment group, Mucosa compositum was ta-

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† References available on request.

Premature newborn in an incubator

ken sublingually at a dose of 0.5 mL every 6 hours for 5 to 7 days.

The evaluation criteria included clinical, functional, and laboratory variables.

The clinical parameters were as follows: altered chest excursion, auscultation sounds in the lung, skin color, increase in feed volume, body mass, and diuresis dynamics.

The functional variables included altered artificial respiration (AR) parameters (i.e., fraction of inspired oxygen, peak inspiratory pressure, and ventilation rate), respiration mechanics (aerodynamic resistance and distension), heart rate monitoring results, respiratory frequency, blood pressure, and arterial oxygen saturation.

The laboratory parameters were as follows: general blood analysis, blood gas measurement, and acid-alkali status.

To exclude congenital developmental defects and to evaluate cerebral blood flow, the neonates underwent neurosonography and echocardiography.

Results

Within several minutes of product administration, the results showed that there was an improvement in chest excursion (i.e., a diminution in contraction of yielding places in the chest, a "swing" symptom, and an improvement in respiration rhythm and amplitude), respiration conducted in the lungs, a diminution in the number of rales, and an improvement in skin color.

In control group patients, a tendency for general edema syndrome (i.e., soft tissue swelling) was noted. By day 3, with the treatment being administered, the incidence of this set of symptoms was almost 3 times lower in the antihomotoxic treatment group versus the control group (6.1% versus 17.0%).

The subsequent comparative analysis showed that in the Mucosa compositum treatment group, a quicker reduction in the oxygen concentration in the respiratory mixture with AR was achieved: a fraction of inspired oxygen of greater than 0.3 was recorded for a mean ± SD of 50.28 ± 9.34 hours (versus 77.65 ± 10.68 hours for the control group; $P < 0.05$). There was also an earlier transfer of the neonates to independent respiration (overall duration of AR in the control group versus the antihomotoxic group, 116.15 ± 10.38 versus 87.63 ± 9.34 hours; $P < 0.05$).

Discussion and conclusion

The data obtained reflect the efficacy of Mucosa compositum in combination treatment for respiratory insufficiency. The product slows the rate of development of bronchospasm by 5 times ($P < 0.01$), has an established broncholytic effect, and reduces lethality (as shown in this experiment).

When this product is used, the course of the clinical picture of RDS in neonates is ameliorated and the incidence of development of general edema syndrome is lowered by 3 times versus the control group. The use of this product shortens the time for which AR is required by 1.3 times ($P < 0.05$) and the time spent by newborns in the intensive care unit.