



**ACUTE BRONCHIOLITIS IN CHILDREN:
DIAGNOSIS AND TREATMENT**

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Acute bronchiolitis is a diffuse inflammatory lesion of the terminal parts of the respiratory tract, characterized by bronchial obstruction and respiratory failure. In most cases, the disease develops in children during the first two to three years of life against the background of an acute respiratory viral infection; the peak incidence occurs at the age of 5–7 months. Each year, 3–4% of young children suffer from acute bronchiolitis, of whom 0.5–2% develop severe forms; mortality is reported in approximately 1% of cases. Severe courses of acute bronchiolitis are observed in children with an unfavorable background, including premature infants and those with congenital lung anomalies and congenital heart defects. The wide prevalence of this pathology and the high rate of hospitalization make the problem of acute bronchiolitis extremely relevant for practical pediatrics and pulmonology.

Acute bronchiolitis is an infectious viral lesion of the bronchioles in children under 2 years of age according to American guidelines, and under 12 months of age according to the recommendations of some European countries. Bronchiolitis is most commonly observed in children under 1 year of age (more than 80–90% of cases). During the second year of life, the disease mainly affects children up to 18 months of age. In many modern clinical guidelines, bronchiolitis is defined as the first episode of viral bronchial involvement in children under 1 year of age, manifested by wheezing and dyspnea (shortness of breath). In the United States and the United Kingdom, wheezing is



considered a mandatory sign of bronchiolitis, whereas in Australia and New Zealand it is not regarded as an obligatory diagnostic criterion.

In infants, acute bronchiolitis is the most common infectious disease of the lower respiratory tract. More than 80% of cases occur during the first year of life, of which 7–14% require inpatient treatment. Worldwide, acute bronchiolitis is the leading cause of hospitalization in children under 2 years of age. According to national data, the incidence of acute bronchiolitis is 114–137 cases per 1,000 children. The highest incidence is observed between 2 and 8 months of life. In newborns, acute bronchiolitis develops rarely due to transplacentally transferred specific maternal antibodies, with the exception of premature infants. Boys suffer from acute bronchiolitis 1.25 times more often than girls. The incidence of acute bronchiolitis depends on climate; in countries with a temperate climate, the peak incidence occurs during the winter season.

Bronchiolitis was first described in detail in 1941 as “an inflammatory respiratory obstruction caused by mucus in the bronchioles as a result of obstruction of the bronchioles by exudate, with a predominant clinical picture of obstructive dyspnea.” According to the American Academy of Pediatrics (AAP), bronchiolitis represents a constellation of clinical symptoms and signs of upper respiratory tract infection during the prodromal period, followed by dyspnea and wheezing due to acute inflammation in the bronchioles. Recurrent episodes of wheezing are not included in the diagnosis of “acute bronchiolitis.” Since the 1980s, the diagnosis of “acute bronchiolitis” has been actively studied and widely used in clinical practice. Prior to that, the disease was usually regarded as obstructive bronchitis or obstructive bronchopneumonia. Unfortunately, according to our own observations, up to 80% of bronchiolitis cases are misdiagnosed as pneumonia and treated with inappropriate therapy. Even when the diagnosis of “bronchiolitis” is established, antibacterial therapy and inhaled corticosteroids are often prescribed unjustifiably.



In some children, cough and wheezing may persist for several weeks or even months after bronchiolitis, and at present there is no clear understanding of whether this represents a continuation of bronchiolitis or a different disease. Therefore, in certain cases, acute bronchiolitis may serve as a kind of “umbrella” masking another pathology. Only long-term follow-up of the child allows for the establishment of a definitive diagnosis. For this reason, foreign literature sometimes uses the term “bronchiolitis syndrome” — SWAB (*syndrome we agreed to call bronchiolitis*). The incidence of acute respiratory viral infections involving the lower respiratory tract reaches 11–12% among children under 12 months of age. Bronchiolitis is the leading cause of hospitalization in children during the first two years of life and accounts for up to 17% of all hospital admissions among young children [1].

The severity of the disease course and the degree of pathogenetic manifestations of bronchiolitis in children primarily depend on the causative viral agent, as well as on the immunological reactivity of the organism. The most common etiological agents of acute bronchiolitis are viruses, including respiratory syncytial virus (RSV) (up to 70–75%), rhinovirus, which is particularly frequent in premature infants and children (14–20%) who required mechanical ventilation during the first month of life, as well as influenza A and B viruses, parainfluenza virus, adenovirus, coronavirus, and human metapneumovirus.

Two antigenic subtypes of RSV are distinguished: A and B. Both subtypes (RSV-A and RSV-B) may circulate simultaneously during RSV bronchiolitis outbreaks, but their proportion varies annually depending on climatic conditions and geographic region. By the age of 2 years, 90–95% of children are infected with RSV; however, only up to 40% of them develop lower respiratory tract infections (LRTIs), such as bronchiolitis or pneumonia. The majority of RSV-infected children (approximately 60%) experience the





infection as a mild upper respiratory tract infection. Only 2–3% of patients with bronchiolitis require hospitalization.

