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Atypical Pneumonia in Children Immunological Features

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Annotation: Recent studies indicate an increasing role in the development of bronchopulmonary diseases in children of atypical pneumotropic pathogens, such as Mycoplasma pneumoniae, Chlamydophila pneumoniae, respiratory viruses, etc. The term "atypical pneumonia" (caused by these pathogens) was introduced 20-30 years ago due to their different course from typical pneumonias caused by extracellular agents - streptococci, staphylococci, etc., as well as the difficulty and rarity of their detection in previous years. Today the situation has changed. The technical and methodological possibilities for the diagnosis of these infections have been revealed and approaches to the etiotropic treatment of diseases caused by them have been identified.

Keywords: mycoplasmal pneumonia, children, Azithro Sandoz.

According to a number of authors, the proportion of Mycoplasma pneumoniae in the etiology of lower respiratory tract diseases in children ranges from 20 to 40 % [1, 2, 8]. The pathogenesis of mycoplasma pneumonia is characterized by intracellular distribution of the pathogen, which involves the use of antibiotics that penetrate into the cell, creating high concentrations of the drug, as well as the use of immunomodulators [4, 7]. Immune disorders prevail in the T-system of immunity: there is a deficiency of T cells, a decrease in the number of CD3+, CD4+ lymphocytes, which is accompanied by an imbalance of cytokines, IgM hyperglobulinemia [6, 7].

Immunological disorders in mycoplasma infection underlie the chronization of diseases of the bronchopulmonary system [7]. Mycoplasmic pneumonia is often combined with herpesvirus infection, which dictates the need to include antiviral drugs [7]. The long-term persistence of the pathogen in the infected organ and mycoplasma-bearing characteristic of mycoplasma infections determine the necessity of using highly sensitive and specific diagnostic methods [3, 5].

Early recognition of mycoplasma pneumonias is an important factor in the fight against Mycoplasma infection, since the timely implementation of etiotropic therapy can have a decisive impact on the course and outcome of the disease. Therefore, the study of the features of the clinical course of mycoplasma pneumonia in children, the timeliness of their diagnosis and treatment have become in recent years years are very relevant.

We present clinical cases of our own observations.

Case 1. Child L., 7 years old, was admitted on 09.09.16 to the children's infectious diseases department of the GDKB No. 5 in Donetsk with complaints of cough, fever to febrile numbers, sore throat, single vomiting when coughing, and general weakness.

From the anamnesis of the disease: he has been ill since 06.09.16, when a sore throat appeared, the temperature increased to subfebrile figures. The next day, a dry cough was combined, on 08.09.16,

the temperature rose to 39.5 ° C. District pediatrician

From the anamnesis of life: a child from the 1st, normal pregnancy. 1st, urgent delivery,birth weight 2700 g. She was breastfed for up to 8 months. At the 1st year of life, she gained weight badly. She was registered for a congenital heart defect, an open oval window. Vaccinated according to the calendar. She suffered from acute respiratory viral infections, acute bilateral purulent otitis media, chickenpox, often has sore throats. In 2013, mitral valve prolapse was diagnosed. Allergic reaction to augmentin. The child's mother has pollinosis.

Upon admission (09.09.13), the general condition is of moderate severity, subfebrile fever, temperature (T) - 37.5 ° C, heart rate (HR) — 120 in 1 minute, respiratory rate (BH) — 26 in 1 minute. The reaction to the examination is adequate. Dry, obsessive cough, which intensifies in the supine position, as well as with deep breathing, is a problem. Nasal breathing is moderately difficult, there is no separation from the nasal passages. Moderately pronounced intoxication syndrome, respiratory insufficiency of the first degree (DN I). Proper physique, sufficient nutrition. The skin pores are clean, pale. The mucous membrane of the palatine arches is moderately hyperemic, diffuse hyperemia and granularity of the posterior pharyngeal wall. The tongue is moist, overlaid with a white coating. Peripheral lymph nodes are small, mobile. The boundaries of the lungs and heart correspond to the age norm. During thoracic percussion, a box percussion sound is determined. Auscultation in the lungs is hard, single dry whistling wheezes, moist large-bubbly wheezes on both sides. The heart tones are sonorous, rhythmic, rapid, and there is a symbolic noise at the I, V points. The abdomen is soft and painless during palpation. The liver protrudes 3 cm below the edge of the costal arch, the spleen — 2 cm. Stools and urination are not disturbed. An X-ray examination of the lungs was carried out (09/10/13): the pulmonary pattern on both sides is reinforced, enriched and deformed in the basal zones, fuzzy, loopy, against the background of moderately reduced pneumatization. The roots are poorly structured, the sinuses are free. The heart is without pathological changes (Fig. 1).

The blood test from 09/10/13 revealed leukocytosis (12.4 • 109/l), a rod-shaped shift of the leukocyte formula to the left (19%), an increase in ESR (38 mm/h): red blood cells — 4,35 • 1012/ l, hemoglobin — 124 g/l, hematocrit — 38.5 %, leukocytes — 12,4 • 109/ l, papillonuclear — 19%, segmentonuclear — 32%, lymphocytes - 27%, monocytes - 22%, platelets — 307 • 109/ l, ESR — 38 mm/h.

Biochemical blood test from 13.09.13: total bilirubin — 14.4 mmol/l, indirect — 13.4 mmol/l, direct — 1.0 mmol /l, AST — 47.5 units/l (norm < 36.0 Units/l), ALT — 57.8 units/l (norm < 29.0 Units/l), glucose — 5,26 mmol/l, Ca2+ — 2,07 mmol/l.

A general urine test is the norm.

Preliminary diagnosis: ARVI. Acute obstructive bronchitis, DAY I. Therapy: cefodox yogurt, viferon, lisobact, inhalations of ventolin, flixotide, aqua maris, antipyretics.

Despite the treatment, the child continued to have a high fever - up to 39.5 ° C; the use of antipyretics and physical cooling methods allowed to reduce the temperature only for 3-4 hours. Against the background of inhalations of selective 2-adrenomimetic (ventolin) and inhaled glucocorticosteroid (flixotide), the phenomena of bronchial obstruction were stopped. At the same time, with percussion of the left half of the chest, a shortening of the percussion sound appeared below the angle of the scapula and along the middle axillary line. During auscultation of the lungs, crepitation began to be observed in these same zones. Out-of-hospital left-sided lower lobe pneumonia was diagnosed. Due to the insufficient effect of oral antibacterial therapy and the treatment of obstructive syndrome, cefodox, erespal, ventolin, flixotide were canceled; ceftriaxone IV (60 mg / kg per day), yogurt, ambro- bene, viferon were prescribed.

Ultrasound of the gastrointestinal tract from 09/19/13: echo- signs of re-active changes in the liver, the presence of contents in the gallbladder on an empty stomach, an increase in the head of the pancreas, the presence of diffuse changes in it.

Despite the ongoing therapy with ceftriaxone, the child continued to have a high fever (temperature

39.5 ° C for 7 days), reacted little to the use of antipyretic drugs, he was worried about a frequent unproductive whooping cough, there was pain in the left side when coughing.

Taking into account the peculiarities of the clinical course of the disease — the child's school age; obstructive syndrome in the first days of the disease; frequent unproductive whooping cough; absence of pronounced respiratory insufficiency; high fever with moderate signs of intoxication; enlargement of the liver and spleen; increased levels of transaminases; dissociation of clinical and radiological data; ineffectiveness of antibacterial means of the cephalosporin series; features of the X-ray picture (loopy, mesh-like seals with indistinct boundaries), pneumonia caused by intracellular pathogens was assumed. Scraping from the oropharynx and examination by polymerase chain reaction (PCR) from 13.09.13: DNA of Mycoplasma rheimopiae was detected; DNA of Chlamydophila pneumoniae is missing. Blood ELISA results from 13.09.13: specific IgM and IgG to Mycoplasma rheimopiae and Chlamydophila pneumoniae were not detected. Therapy is supplemented with a macrolide group drug - Azitro Sandoz® 200 mg / 5 ml, powder for oral suspension of 10 mg / kg of weight per day, viferon in candles.

A day later, from 09/14/13, the child stopped smoking, the intoxication syndrome quickly disappeared, and the cough became productive and bothered much less often. After a week, the wheezing in the lungs disappeared.

Chest X-ray (con- trol after 17 days) 09/26/13: moderate positive dynamics is determined: the pulmonary pattern has become clearer, loopy, the dynamics are better. Roots: right structural, left malostructural (Fig. 2).

Blood test from 09/26/13: red blood cells — 4, 46 • 1012/ l, hemoglobin — 130 g/l, hematocrit — 37.1 %, leukocytes — 3, 8 • 109/ l, eosinophils — 4%, rod—6%, segmentonuclear — 25%, lymphocytes - 55%, monocytes - 10%, platelets- you — 320 • 109/ l, SOE — 4 mm/h.

On 26.09.13, the child was discharged from the hospital in a satisfactory condition with the diagnosis: community-acquired left-sided polysegmental mycoplasma pneumonia, DAY I. Mitral valve prolapse.

Conducted therapy: Azitro Sandoz® 200 mg/5 ml, powder for oral suspension of 10 mg / kg of weight per day — 3 weeks, viferon, li-dogt, yogurt, ambrobene, ventolin, flixotide, ascoril, aqua maris, alkaline inhalations, heat-lowering drugs, holosas.

In a control study of scraping from the oropharynx 3 months after the onset of the disease

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