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The virus-associated community-acquired pneumonia

Landyshev J.S., Gaborov N.D., Kondrahina A.P.

Amur State Medical Academy, Department of Hospital Therapy, Amur Region Clinical Hospital. Blagoveshchensk, Russia.

Abstracts: Presented information about features of the diagnosis and the clinical current of the virus-associated community-acquired pneumonia.

Key words: pneumonia, virus A/H1N1swl.

According to the time of its emergence pneumonia as a complication of influenza is subdivided into:

- 1) direct influenza viral pneumonia which is diagnosed starting from the 1-2 day of influenza;
- 2) secondary viral-bacterial pneumonia, arising at the 4-9 day of illness;
- 3) secondary bacterial pneumonia arising at 12-14 day of illness.

Materials and methods. Now days it's generally accepted that through oppression of immunogenesis and decreasing of physiological protection barriers of tracheobronchiatree's mucus viruses pave the way for activation of vital life of pathogenic bacteria.

Virologists have discovered more than 200 kinds of viruses that can cause respiratory disease. Among them, the most common are influenza viruses, adenoviruses, mycoplasma, psittacosis, rickettsia. The frequency of influenza pneumonia increases significantly during influenza epidemics and pandemics, and declines to 5-1% in interepidemic period. For the emergence of pneumonia in patients with influenza bacterial infection's adhesion is very important (V. Silvestrov, E.S. Ketaladze).

Results and discussion. Mechanism for the dissemination is air-droplet. The incubation period is 1-4 days. The stage of viral shedding lasts for 1-7 days after emergence of clinical symptoms of the disease. The immunity after one has been ill with one strain of influenza virus is acquired only for this certain virus. Because of its epitheliotropic, for influenza A/H1N1swl columnar epithelial cells of the respiratory tract are the primary localization of virus reproduction and development of pathological process. From the places of primary localization viruses soon pass into the blood, than when viremia develops, it is usually associated with a general toxic effect on the body, which is in contrast to the other acute respiratory viral infections (ARI) expressed in a specific influenza intoxication.

Toxic effects of influenza viremia appears in capillary toxemia, hemodynamic disturbances with lesion of central nervous system. Hemodynamic disturbances is accompanied by increase of vessel walls permeability, developing of hemorrhagic syndrome, which is clinically manifested as epistaxis, hemorrhages in the skin, mucous membranes, lesion of the nervous system: toxic encephalopathy, neurotoxicosis, encephalitic reactions meningoencephalitis.

Influenza virus is a disease in which the main reproduction of the virus takes place in the location of adhesion, that is in the cylindrical respiratory epithelium of the lungs, in the trachea mainly, that causes the short incubation period and intensity of the local changes of the trachea and bronchi. At that time in the mucous of trachea and bronchi influenza virus enters the cell, accumulates there and then lymphogenously penetrates into blood and hematogenically reaches viruses most sensitive tissues. After that clinical symptoms appear, while the accumulation of virus takes place during the incubation period.

In the pathogenesis of the viral disease adhesion of a secondary bacterial infection becomes very important. For the majority of acute respiratory infections (influenza, parainfluenzaadenoviruses), a complication of pneumonia is the result of layering bacterial microflora. Besides decreasing of general immunogenesis, prerequisite for this are local changes in the fixation and reproduction of viruses, which causes emergency of so called viral and bacterial pneumonia. Furthermore, it should be mentioned that in clinical practice under the effect of immune suppression various chronic diseases (tuberculosis, rheumatic fever, COPD, asthma, diabetes, etc.) often exacerbate.

The first protective barriers on the way of the virus into the body are skin and mucous membranes, which protect the individual from the environment. Upper respiratory tract: nasal cavity, pharynx, trachea and bronchi are the aerosol filters, which help to clean, warm, moisture, and remove harmful impurities and inclusions. About 8,000 liters of air passes through the filter every day. drainage function of the respiratory tract, primary mechanism of which are power of a stream of air exhaled, the activity of ciliated epithelium, the allocation of mucous and serous secretion by goblet cells and the other, and a powerful breathing reflex: sneezing and cough are really important in the evacuation of lung viruses and other foreign inclusions.

In conclusion clinical and pathogenetic features which are observed at pandemic influenza virus A/H1N1swl are:

1. This virus is a new modification of the influenza A virus which the human population has no immunity for, neither natural nor postvaccinal.
2. The disease is observed mainly in adults, which resembles the virus "Spanish flu" pandemic in 1918.
3. The reason of considerable spreading of influenza A/H1N1swl is short incubation period and early clinical manifestation of the disease.
4. Bowel dysfunction is a particular feature of influenza A/H1N1swl. Patients report about pain in the abdomen, diarrhea develops at 2-3 days from the beginning of disease, the frequency is 2-10 times a day without pathological impurities, it normalizes within 1-2 days.
5. Obesity was not a risk factor in past pandemics influenza, as well as seasonal and flu. During influenza pandemic A/H1N1swl acute obesity was often observed in patients with serious or lethal outcome of the disease. Despite the fact that the reason for this increased risk is not fully discovered it can be assumed that patients's obesity was often combined with diabetes mellitus, hypertension, ischemic heart disease.
6. During the swine flu pandemic in 2009, in contrast to seasonal epidemics the spread of the disease predominated amongst the young population. According to the WHO, most patients all over the world infected with influenza A/H1N1swl had mild run disease.

Conclusions.

Most patients recovered within one week. However, a limited contingent of healthy people younger than 50 years old had a rapid progression of the disease with the transition to severe or lethal outcome, that was caused by viral and bacterial pneumonia. The most common cause of death in this

group of patients was acute respiratory failure, refractory shock with the development of multiple organ failure.

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Cells bronchoalveolar lavage fluid patients with bronchial asthma

Lazutkina¹E.L., Landyshev¹Yu.S., Tsyrendorzhiev²D.D., Bardov¹V.S.

¹Amur state medical academy, Blagoveshchensk, Russia

²Scientific research institute of clinical immunology of Russian Academy of Medical Science, Novosibirsk, Russia

Abstracts: Studied the cellular composition of the oxidation-state of metabolic function and cytokine-producing activity of cells of bronchoalveolar (BAL) fluid of patients to clarify the mechanisms that determine the severity of the clinical course of bronchial asthma (BA). The study included 18 patients with mixed form of BA, who were divided into two groups depending on the severity of asthma: 10 patients with moderate and, 8 - severe degrees of severity.

The study found that increasing the number of neutrophils in BAL fluid of patients with asthma as the worsening of the disease. Also found that with the worsening of the severity of BAL fluid cells of asthmatic patients secrete more Th2 cytokines profile. The substantiation of the fact that these changes in the functional state of pulmonary cells are the basis of the mechanisms that determine the severity of the clinical course of asthma.

Key words: asthma, bronchoalveolar lavage, neutrophil, macrophage, active oxygenmetabolite, cytokines.

Respiratory diseases are the leading place in the overall morbidity of the population of the Russian Federation, which determines not only their medical significance, but also the social burden on the economy of any country in the world. As you know, the most important factors in the onset and progression-trivial bronchial asthma (BA) are the changes in immune regulation, among which the leading role belongs to the IgE-mediated allergic reactions [1], which, of course, depend on the functional state of the effector cells of inflammation and allergy [7].

Currently in clinical practice for diagnosis and treatment of patients with asthma are widely used methods of bronchoscopy, with the result that it became possible to carry out morphological study of bronchial biopsies to obtain pulmonary cells and study their structural and functional status [5]. In our view, in contrast to the evaluation of cytologic features of sputum, bronchoscopic method and further cytological and morphological study of the biological material is obtained in the course of its holding, allows us to understand the true picture of pathological processes occurring in the airways and lung tissue. At the same time it is worth noting that the sputum is often used in pediatric patients because it is noninvasive, has no side effects and contraindications [11, 13, 16].

Thus, the present study examined the cellular composition, oxidative-metabolic function and cytokine-producing activity of cells of bronchoalveolar lavage fluid of patients to clarify the mechanisms that determine the severity of the clinical course of asthma.

Material and methods

We examined 18 patients with mixed form of bronchial asthma (allergic and infectious-dependent) who were hospitalized in pulmonology department of Amur Region Hospital