
ПРАКТИКУЮЩЕМУ ВРАЧУ

УДК 618.3-06:616.921.5

*O.Yu. Nikolenko, V.Yu. Nikolenko, Yu. A. Lygina***THE IMPACT OF INFLUENZA ON PREGNANCY (LECTURE FOR DOCTORS)***Donetsk State Medical University named after M. Gorky*

Summary. *Influenza is an acute infectious disease with airborne pathogen transmission mechanism. Influenza viruses can circulate in birds and some animals. Only three subtypes H (H1, H2, H3) and N (N1, N2, N8) circulated or circulate widely among humans. Toxic-allergic and autoimmune reactions play a significant role in the pathogenesis of influenza. All of this is the basis for the development of intensive and massive inflammation in macroorganism. Influenza in the pathogenetic aspects must be considered as local invasion with systemic toxicity and hemorrhagic capillary toxicosis with the overwhelming defeat of microvessels of upper respiratory tract, lungs and central nervous system. Pneumonia is considered as a risk factor for the development of many of the complications of pregnancy and childbirth (placentitis, polyhydramnios, miscarriage, premature birth, disorders of placental blood flow, postpartum endometritis, sepsis and others). The most common causative agents of pneumonia in pregnancy are: pneumococci, streptococci and Haemophilus influenzae, rarely staphylococci, Klebsiella, enterobacteria, Legionella. In the last decade the importance of etiologic pathogens such as mycobacteria, mycoplasma, chlamydia has increased. Appointment of antivirals such as arbidol, groprinozin, recombinant interferons, inducers of interferon in the first days of the disease is effective and prevents the occurrence of complications. All pregnant women are at risk of severe and complicated course of influenza. It is necessary to continue antibacterial and antiviral therapy in the postpartum period, and it should be followed by X-ray control, including prevention of development of postpartum endometritis.*

Keywords: *pregnancy, influenza, etiology, pathogenesis, treatment.*

Influenza is an acute infectious disease with an airborne-droplet transmission mechanism, occurring with symptoms of general intoxication, high fever (over 38 °C), sore throat and, often, tracheitis phenomena [17].

It is generally known that the influenza A virus can be divided into subtypes based on surface proteins – hemagglutinin (H) and neuraminidase (N). In total, 15 subtypes of H and 9 subtypes of N are known. However, only 46 of the 135 pairs of combinations occur in nature, and only 22-25 of them were found among the influenza viruses identified in the bird population [7, 8, 9, 10].

Significant role in the pathogenesis of influenza is played by toxicallergic and autoimmune reactions. All this is the basis for the development

of an intense and massive inflammatory process in the macroorganism. First of all, this refers to the respiratory tract as "entrance gates" for viral invasion and microcirculatory bed, which is accompanied by a marked capillary toxicosis with suppressive lesions of the microvessels of the lungs and the central nervous system (CNS). As a rule, the replication of the influenza virus in sensitive cells leads to their destruction and death, and consequently, to damage of virus-infected organs and tissues, which contain the cells noted above, which is naturally accompanied by a violation of organ and tissue functions [14]. It is necessary to consider the selective ability of influenza viruses to infect the cells of the cylindrical epithelium of the respiratory tract, including the smallest bronchioles of the third order, which is also confirmed by the data of pathomorphological studies. According to modern data, influenza in the pathogenetic aspect first of all should be considered not as a generalized viral infection, but as a local invasion with systemic toxicosis and hemorrhagic capillary toxicosis with an overwhelming lesion of the microvessels of the upper respiratory tract, lungs and the central nervous system [11, 14].

Pneumonia is considered as a factor of increased risk for the development of many complications of pregnancy and childbirth (placentitis, polyhydramnios, miscarriages, premature birth, violations of placental blood flow, postpartum endometritis, sepsis, etc.). The most frequent pathogens of pneumonia in pregnant women are: pneumococci, streptococci and haemophilus influenzae, less often staphylococci, klebsiella, enterobacteria, legionella. In the last decade, the aetiological significance of such pathogens as mycobacteria, mycoplasma, chlamydia has increased. Mycoplasmal and chlamydial infections are usually exposed to young people. In turn, influenza epidemics contribute to the increase in pneumonia caused by influenza type A, B, C, parainfluenza, adenovirus, etc. [10, 13, 15]

The risk factors for the development of pneumonia in pregnant women, especially during

the epidemic of influenza, include: third trimester of pregnancy; age from 30 to 40 years; presence of extragenital pathology, especially anaemia and foci of chronic infection (chronic pyelonephritis, bacterial vaginosis); high and very high risk on the Cooplund scale; later seeking medical help, leading to a worse prognosis of the course of the disease, even in patients without extragenital pathology [1, 6].

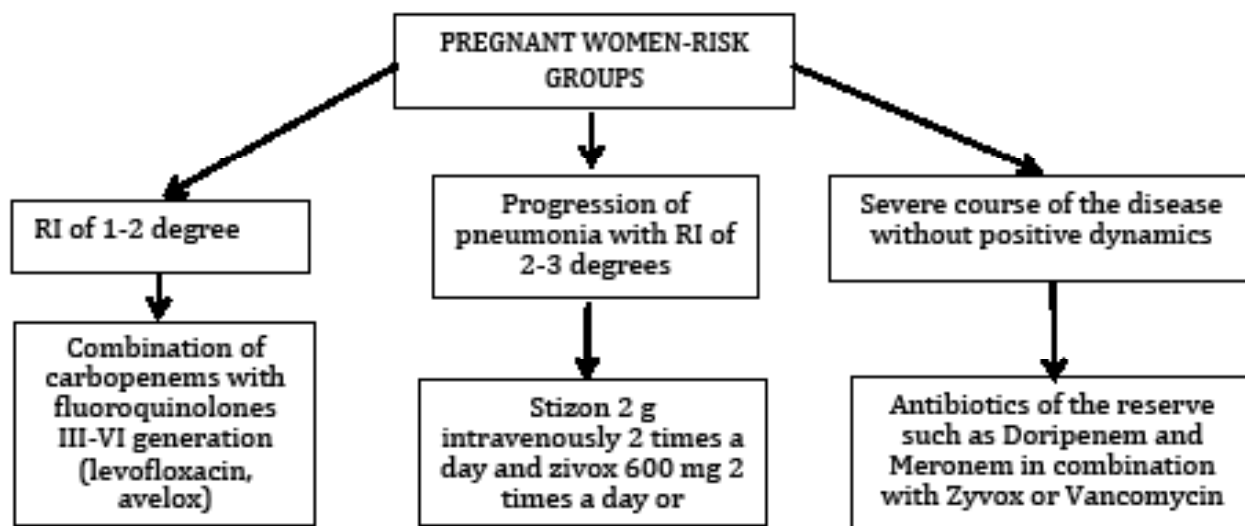
The purely viral aetiology of pneumonia remains controversial. It is believed that the viruses serve as inducers, which prepare the basis for attachment of the bacterial and mycoplasmal flora. Nevertheless, the role of viruses in the development of pneumonia is not refuted. However, in both domestic and foreign literature, there is practically no mention of antiviral therapy [12, 14, 15].

The number of pathogens of infectious diseases with ante-, intra- and perinatal infection is almost unlimited. However, one of the first places belongs to the pathogens of viral infections, among which the most common in pregnancy are respiratory viruses (influenza, parainfluenza, adenovirus, respiratory syncytial (RS) virus), enteroviruses and herpes viruses - herpes simplex virus (HSV) and cytomegalovirus (CMV). The peculiarity of these infections in pregnant women is the asymptomatic or subclinical course of the disease. However, the immune restructuring that occurs

in the body of a woman during pregnancy creates conditions for activation of a latent infection, which increases the likelihood of intrauterine infection of the fetus.

Despite the close attention of many scientists, the issues concerning the treatment of pneumonia in pregnant women still remain controversial [12]. The administration of antiviral preparations of arbidol and groprinosin, recombinant interferons, interferon inducers from the first day of the disease is effective and prevents the occurrence of complications. Seeking medical help after the third day of the disease caused the development of complications that required the appointment of antibiotics. Pneumonia is not an indication for abortion. Pregnant women with out-of-hospital pneumonia require constant monitoring and treatment in a hospital. Aminopenicillins (amoxicillin), macrolides (azithromycin, spiramycin), "protected" aminopenicillins (amoxicillin/clavulanic acid, e.g., Augmentin) and cephalosporins of the II-III generation (ceftriaxone, cefuroxime and cefuroxime axetil) are recommended. For etiotropic treatment of influenza A and B in pregnant women, zanamivir (Relencam) may be used if the benefit of using the drug exceeds the potential risk to the fetus [3].

Such a scheme can be used to treat pregnant women with increasing respiratory insufficiency (RI):



The above-described category of pregnant women should be prescribed antibacterial therapy: clarithromycin 500 mg intravenously every 8 hours with the expectation of an antiviral effect of antibiotic (as a basic antibiotic therapy) in combination with cephalosporins of III-IV generation or respiratory fluoroquinolones. In some cases, obstetric patients are shown to prescribe low molecular weight heparins in connection with the presence of hemorrhagic component of viral pneumonia.

To treatment, we suggest considering the scheme of medical tactics for influenza and other acute respiratory viral infections (ARVI) in pregnant women:

1. All pregnant women are at risk of severe and complicated influenza.
2. In outpatient practice, the starting antibiotic in the presence of indications for its use is amoxicillin/clavulanate (amoxiclav).
3. X-ray examination should be carried out for all pregnant women with severe course of

influenza and other ARVI when entering the hospital regardless of the gestational age.

4. Pregnant women with severe influenza and acute respiratory viral infection (persistent hyperthermia above 39° C, not suppressed by conventional antipyretic agents, dry and unproductive cough accompanied by shortness of breath) should receive tamiflu (150 mg/day) from the first day of illness or admission to hospital. Antibacterial drugs, and the remaining pregnant women with ARVI - arpetol 200 mg 2-4 times a day, depending on the severity of symptoms of acute respiratory viral infection.

5. It is inappropriate to conduct labor induction to pregnant women with pneumonia before the onset of natural labor.

6. It is necessary to carry out treatment of fetoplacental insufficiency (actovegin intravenously) with further oral reception on an outpatient basis.

7. In the presence of signs of RI, disable the second period of labor (imposition of obstetric forceps) or acceleration of the second stage of labor (vacuum extraction of the fetus). With RI 1 it is advisable to use vacuum extraction of the fetus, with RI 2 - cavity obstetric forceps. If these recommendations are not followed to turn off the lapse period at any parity of birth, the risk of more severe course of pneumonia increases with the transfer of a woman to artificial ventilation [16, 17].

Use as a preventive and therapeutic agent of plant phytocompositions Imupret favorably influences immunological indices and thereby increases the effectiveness of therapy. In addition, when the protective function of the immune system is compromised, the use of synthetic immunostimulants, drugs that have a "hard" stimulating effect on immunity, is contraindicated. It is equally effective and much safer to use natural immunocorrectors, which gently and practically at the physiological level normalize immunity [2].

Inhalation use of an antiviral and immunotropic drug laferon in a dose of 500,000 IU in the form of an aerosol during the first three days in patients with influenza B contributes to the rapid disappearance of clinical signs of the disease and causes a significantly greater effect on the indices of the cellular link of systemic immunity in comparison with basal therapy [4].

Much attention in the management of influenza patients is given to specific antiviral therapy. According to recommendations of the WHO and CDC empirical antiviral therapy, patients with suspected influenza or refined diagnosis are subject to a severe, progressive, complicated course that requires hospitalization, as well as a patient at risk. For specific treatment of influenza, WHO and CDC recommend the

use of neuraminidase inhibitors, such as oseltamivir, zanamivir, peramivir. M2 receptor blockers (adamant) for empirical therapy are not appropriate, since the pandemic strain of influenza A/California/07/2009 (H1N1) and the modern A (H3N2) viruses have a high level of resistance to them [7].

From the literature data it is known about the positive effect of glucocorticoids on the state of lungs of pregnant women with severe acute respiratory viral infection and influenza, as well as on the maturation of the fetus. Given the anti-inflammatory mechanism of dexamethasone, its ability to stabilize the lysosomal membranes and reduce the permeability of capillaries, it is recommended at moderate therapeutic doses when patients enter the intensive care unit. At the same time, special attention should be given to early diagnosis and timely treatment of fungal complications, especially aspergillosis if it is diagnosed [5].

Conclusions. Significant role in the pathogenesis of influenza is played by toxic-allergic and autoimmune reactions. All of this is the basis for the development of the intensive and massive inflammatory process in the macroorganism.

Pneumonia is considered as a factor of increased risk for the development of many complications of pregnancy and childbirth (placentalitis, polyhydramnios, miscarriages, premature birth, violations of placental blood flow, postpartum endometritis, sepsis, etc.).

All pregnant women are at risk of severe and complicated influenza.

It is necessary to continue antibiotic and antiviral therapy in the postpartum period with subsequent X-ray control, including to prevent the development of postpartum endometritis.

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ВЛИЯНИЕ ГРИППА НА БЕРЕМЕННОСТЬ (ЛЕКЦИЯ ДЛЯ ВРАЧЕЙ)

Резюме. Грипп – острое инфекционное заболевание с воздушно-капельным механизмом передачи возбудителя. Вирусы гриппа способны циркулировать среди птиц и некоторых животных. Только три субтипа H (H1, H2, H3) и N (N1, N2, N8) широко циркулировали или циркулируют среди людей. Существенную роль в патогенезе гриппа играют токсико-аллергические и аутоиммунные реакции. Все это является основой для развития интенсивного и массивного воспалительного процесса в макроорганизме. Грипп в патогенетическом аспекте необходимо рассматривать как локальную инвазию с системным токсикозом и геморрагическим капилляротоксикозом с подавляющим поражением микрососудов верхних дыхательных путей, легких и ЦНС. Пневмония рассматривается как фактор повышенного риска для развития многих осложнений беременности и родов (плацентит, многоводие, выкидыши, преждевременные роды, нарушения плацентарного кровотока, послеродовой эндометрит,

сепсис и др.). Наиболее частыми возбудителями пневмоний у беременных являются: пневмококки, стрептококки и гемофильные палочки, реже стафилококки, клебсиеллы, энтеробактерии, легионеллы. В последнее десятилетие возросла этиологическая значимость таких возбудителей, как микобактерии, микопlasма, хламидии. Назначение противовирусных препаратов арбидола и гропринозина, рекомбинантных интерферонов, индукторов интерферонов с первых суток заболевания является эффективным и предупреждает возникновение осложнений. Все беременные относятся к группе риска тяжелого и осложненного течения гриппа. Необходимо продолжать антибактериальную и противовирусную терапию в послеродовом периоде с последующим рентгенологическим контролем, в том числе для профилактики развития послеродового эндометрита.

Ключевые слова: беременность, грипп, этиология, патогенез, лечение.

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