

USE OF ALLERGOLOGICAL METHOD FOR THE DIAGNOSTIC SOME OF INFECTIOUS DISEASES

Steshenko M.S.

Scientific supervisor: ass. prof. Dubinina N.V.
National University of Pharmacy, Kharkiv, Ukraine
microbiology@nuph.edu.ua

Introduction. With many infectious diseases, a state of hypersensitivity to the re-introduction of the pathogen or its metabolic products develops. Using allergy diagnostic method can detect a state of heightened sensitivity of microorganism to any allergens, including to microbial.

Aim. To analyze the use of methods of allergy in infectious diseases.

Assess the importance of the allergy method in the diagnosis of certain infectious diseases.

Materials and methods. To study the methods of allergic diagnostics in infectious diseases.

Results and its discussion. Infectious allergy differs from other types of allergy (food, household, medicinal) not only because it is caused by microbial allergens, but also because it is maintained and maintained only when there are appropriate microbial agents and / or their toxins. To identify infectious allergies conduct in vivo and in vitro diagnostics.

To identify infectious allergies conduct in vivo and in vitro diagnostics. Most often, in the diagnosis of a number of infectious diseases (tuberculosis, brucellosis, tularemia, etc.), intradermal allergy tests are made to identify delayed-type hypersensitivity to microbial allergens, which manifests itself relatively early (from 4-5 days of illness) and reaches the highest intensity at 2-3 weeks of illness. The result of the test allows you to assess the patient's condition: infection without the presence of a disease or of a previous illness.

Since the end of the 20th century, research is being conducted to replace invasive allergic tests with a safer and more specific method for evaluating allergic alteration of the body in vitro. Such tests allow to assess the state of specific sensitization of blood leukocytes in relation to a specific antigen, for example, the reaction of inhibition of leukocyte migration, the reaction of leukocytolysis (neutrophil damage) in the presence of a specific microbial antigen.

Conclusions. Using an allergic method to diagnose certain infectious diseases helps to confirm the diagnosis. Allergy diagnostics in vivo has both advantages (specificity, accessibility, visibility, low cost) and disadvantages (sometimes accompanied by severe adverse reactions). In vitro allergic diagnostic methods are completely safe and have no contraindications. They are characterized by great informational content, possibly widespread introduction of diagnostic laboratories into clinical practice and can be used for mass research. However, when using one or another interpretation of the method, it is necessary to take into account the specifics of the development of the allergic process, the information content and the harmlessness of the test.

HUMAN PAPILLOMAVIRUS INFECTION. ONCOGENITY AND VACCINATION

Synova T.O.

Scientific supervisor: senior researcher Glibova K.V.
National University of Pharmacy, Kharkiv, Ukraine
microbiology@nuph.edu.ua

Introduction. Malignant tumors of the female reproductive system remain unresolved issues of humanity, because it focuses on medical, social and demographic problems. Cervical cancer is one of the most common types of oncology among women in Europe. This problem is important at the state level, because reproductive age women make up 27.5% of oncogynecologic patients.

Aim. Scientific substantiation of complex prophylaxis of cervical cancer and vaccination to prevent infection by some HPV types.

Materials and methods. Analysis of the scientific literature and the results of the advanced research in the field of medicine and pharmacology.

Results and discussion. According to WHO, cervical cancer ranks second place in the world after breast cancer in the cancer incidence among women aged 15-44. It was established that cervical cancer causes the 16th, 18th and 31st types of human papillomavirus (hereinafter – HPV). HPV is transmitted only from person to person and leads to a change in the nature of the growth of epithelial tissues (skin and mucous membranes). One of the safe diseases caused by HPV are warts. HPV is known for a long time. Today there are more than 100 types (strains), among which there are oncogenic types.

Diseases caused by various types of human papillomavirus

Diseases	Type HPV
Warts	1, 2, 4, 6
Melanoma	3, 10, 27, 28, 38, 41, 49
Respiratory Papillomatosis	6, 11
Carcinoma of the oral cavity epithelium	16,18
Genital wart	6, 11, 30, 42, 43, 44, 45, 51, 52, 54
Cervical cancer	16, 18, 31
Carcinoma of the penis	16

The structure and biology of the virus have been studied in a detailed manner. Papillomaviruses have relatively small virions, devoid of membrane shell. Their diameter is about 30 nm. This is four times less than the diameter of HIV or flu. The genome of papillomaviruses is represented by a ring double-stranded DNA molecule packed with histones. The genome of papillomaviruses encodes two types of proteins. Early proteins (early proteins, E-proteins) carry out regulatory functions, provide reproduction of the virus and are responsible for malignant degeneration of cells. Late proteins (late proteins, L-proteins) perform a structural function, form a virion capsid.

The life cycle of HPV is tied to the stages of development of keratinocytes – cells that consist of the epidermis, the upper layer of the skin, and the layered epithelium of the mucous membranes. Young active keratinocytes lining the basement membrane, which is located under the upper layers of the epidermis. Keratinocytes are shifted to the surface of skin when they have matured and differentiated. Viral particles infect not yet differentiated cells, and new particles are formed in keratinocytes, which have reached the terminal stage of differentiation. Therefore, having got into the body, the papillomavirus infects the basal layer of the epithelium; the most affected area is the transition zone of a multilayered flat epithelium in a cylindrical epithelium. In the infected cell virus exists in two forms: episomal (out chromosomes), which is considered to be benign, and introsomal – integrated (built into the cell genome) – which is defined as a malignant parasite form of the virus.

It is possible to diagnose a human papillomavirus during a clinical examination (all types of warts, genital warts), also appropriate colposcopy, histological examination, Digene-test, typing using PCR. Precancerous conditions (cervical cancer) in women are symptom free and can only be detected by a specialist and during cytological screening. Qualitative cytological screening can prevent 4 out of 5 cases of cervical cancer. Through the introduction of screening programs, European countries managed to reduce the incidence of cervical cancer by 65%. In Norway, for example, due to the large-scale coverage of the female population by screening programs, mortality from cervical cancer was reduced from 6.5 (per 100.000 population) in 1970 to 1.5 (per 100.000 population) in 2011.

There are no international standards for the treatment of HPV-induced infection. For the first time, prophylactic vaccination against HPV types 18 and 16 was applied in 2006 in the United States. Since 2006, research has been ongoing on the effectiveness and safety of its conduct. Currently, two vaccines have been developed: cervarix (Cervarix®, GlaxoSmithKline) and gardasil (Gardasil®, Sanofi Pasteur MSD). Gardasil is a quadrivalent recombinant HPV vaccine containing virus-like parts of HPV types 6, 11, 16, 18. Registered in more than 80 countries of the world. Cervarix is a bivalent recombinant vaccine; consists of 16 and 18 types virus-like parts of HPV. Registered in 35 countries. Vaccines do not contain viral genetic material, and consist of the main capsid proteins L1. They are made by genetically engineered and are not infectious. In addition to cervical cancer, protection against cancers of the vulva, vagina, anal cancer and anogenital warts is also provided.

Vaccination is carried out in three stages according to the scheme 0 – 2 months. – 6 months. Data analyzed over 5 years showed that the peak of antibody titers was observed after the third vaccine injection (for the seventh month), then the level decreased for 24 months, stabilized and maintained at a certain level throughout the observation period. It has been found that the antibody level reached after vaccination is inversely proportional to age. The highest titre of antibodies was observed in the age group of 9-13 years, which gave reason to consider vaccination at this age the most effective.

Most national vaccination programs focus on female vaccination. At the same time, the number of countries that start vaccination among boys (the USA, Canada, Australia) is increasing. The justification for this vaccination tactic is that men are not only the source and carrier of the infection, but also suffer from oncology caused by HPV (anal cancer, cancer of the external genitalia, anogenital warts).

Conclusions. Nowadays, countries have different approaches to financing national vaccination programs against HIV infection: inclusion in the national vaccination programs of the recommended population groups (Australia); free vaccination for specific populations (US vaccine program); partial compensation for the cost of vaccination, surcharge from the patient (France). In Ukraine, vaccination against HPV is a recommended remedy, therefore the availability of modern effective methods of prevention of cervical cancer for the population is limited. In addition, in Ukraine, unlike developed countries, is conducted an opportunistic screening of the cervical pathology. It's effective at 14.0%. Implementation of a training program for cytologists will be a major factor in the effective prevention of malignant cervix tumors in Ukraine.

RESISTANCE TO HELICOBACTER PYLORI TO ANTIBACTERIAL PREPARATIONS

Tkach R.S.

Scientific supervisor: ass. prof. Dubinina N.V.
National University of Pharmacy, Kharkiv, Ukraine
microbiology@nuph.edu.ua

Introduction Among bacterial infections, special attention is paid to infections caused by *Neelobacter pylori* (HP) – a microorganism that infects approximately 60% of the world's population. A certain etiological and pathogenetic role of *Helicobacter pylori* (HP) bacteria has been proved in the development of common diseases – acute and chronic gastritis (in 80-100% of patients), peptic ulcer of the stomach and duodenum (70-80%), the formation of certain types of gastric tumors (100%) – with MALT-lymphoma, 80-95% with adenocarcinoma of the stomach), dyspepsia of non-ulcer etiology (60%). WHO has identified this microorganism as a type 1 carcinogen.

Aim. An analysis of the information presented in literary sources regarding the resistance to antibacterial drugs for helicobacter infection.

Results and its discussion. The antibiotic resistance of *Helicobacter pylori* is realized due to the ability to form a biofilm, which increases its survival in the acidic and aggressive environment of the stomach and the ability to turn in unfavorable conditions from spiral-shaped in coccus forms.

It is established that HP is resistant to antibacterial preparations of groups of nitroimidazoles, macrolides, fluoroquinolones, rifampicin derivatives, and semi-synthetic penicillins.

It is known that the development of primary resistance of microorganisms to certain antibacterial drugs depends on the frequency of their application in the population of a specific region. The development of HP's primary resistance to these drugs is associated with their fairly frequent use in infectious and respiratory diseases. Secondary bacterial resistance develops due to anti-helicobacter therapy.

Increasing doses of antibacterial agents does not overcome the resistance of bacteria, but only leads to an increase in the frequency of side effects.

Conclusions. *Helicobacter* infection can be the cause of many disorders in the human body, or affect them. In order to increase the effectiveness of eradication, taking into account the sensitivity and resistance of bacteria to drugs, ethnic, geographic features of each population and the economic