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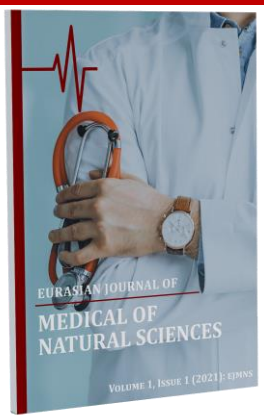

ORTHOMYXOVIRUSES. INFLUENZA VIRUS.

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ABSTRACT

In medicine, viral infections differ from bacterial infections by their frequent occurrence, high contagiousness, and severity of complications. Every doctor should know the epidemiology, pathogenesis, clinical symptoms, diagnosis and prevention of these diseases. If the general and special measures taken in the event of these diseases are not carried out in time, if the doctors cannot correctly choose the material from the patient for examination, this disease may spread widely among the population and epidemic situations may escalate.

The influenza virus belongs to the Orthomyxoviridae family and three types are classified as A, V, and C. Of these, type A mainly occurs in the form of epidemics and pandemics. Influenza viruses cause disease in humans, birds and animals. One of the unique features of the influenza virus is that it changes its surface antigens (hemagglutinin NA and neuraminidase NA) under natural conditions. Every time the change of these surface antigens leads to the appearance of a new variant of the virus. Every 10-15 years, the virus completely changes its antigenic structure (in the ceiling method), and a new serological type of the influenza virus appears, and the disease a new pandemic will begin in the world. Since 2000, the N2N5 bird flu has been a major threat to human health on earth. Since 2009, the swine flu virus N1N1 has returned (caused a pandemic in 1976) and is causing a new pandemic on earth. In recent years, toxic forms of influenza and paranoid (N2N5) types have been very clinically severe and in most cases have resulted in death. is considered to infect the cavity. Laboratory animals that are susceptible to the influenza virus are African gerbils and white mice. More serological methods are used in retrospective diagnosis of influenza virus.

Rhinostitoscopic method. It is an express method used to quickly identify the pathogen in the laboratory diagnosis of influenza and other respiratory viral diseases. A swab is taken from the surface of the lower concha of the patient's nose (with the help of a glass with polished edges or a plexiglass plate).

Stamp - smears are dried, fixed and stained with Romanovsky-Giemza or fuchsin, methyl blue. Cylindrical epithelium, as well as in the cytoplasm of degenerated macrophages, leukocytes contain red inclusions with wide contours.

In the diagnosis of the influenza virus, rhinostitoscopic examination, although not a special method, helps to distinguish influenza from adenovirus diseases. In this case, the structure of the cell is disturbed, as a result, nuclei are vacuolated and inclusions appear inside the nucleus. During the reproduction of adenoviruses, unlike other viruses, characteristic steatopathic changes occur in epithelial cells, that is, the cells become rounded, pile up at the edge of the layer (reminiscent of grape skins), accumulate, and the culture quickly rises above the glass (test tube) level. As for parainfluenza viruses, multinucleated symblast cells are formed due to the attachment of cells to each other. Respiratory viruses develop slowly in fibroblast cells, and in this case, the cell swells rapidly, as a result of which their nuclei disintegrate. Adenoviruses are characterized by inclusions in the nucleus of epithelial and fibroblast cells.

Indirect, direct immunofluorescence (Kuns) reaction BIFR (RIF) is very specific, in which lies the mechanism of detection of viral antigens from infected cells using targeted fluorescent antibodies.

The patient's throat, nasopharyngeal swabs and cell cultures infected with these swabs serve as material for examination. Tea obtained for the preparation of the drug is spun in a centrifuge 2000-3000 times per minute for 10 minutes. Smears are prepared from the sediment on several degreased glass slides and dried and fixed in clean acetone for 5 minutes. Then the same drugs are treated with marked fluorescent antibodies (specially released: influenza A1, A2; parainfluenza type 2 and 3 viruses; multivalent serum against respiratory syncytial virus, adenoviruses). If the indirect method is used, the specific anti-virus AT mentioned above is added to the smear, then it is washed and treated with fluorescently labeled human antiglobulin serum. At the end of the analysis, the preparations are examined under a fluorescent microscope. If there are viruses in the drug, they are smeared under a fluorescent microscope and special attention is paid to virus particles emitting light: if smeared adenoviruses are seen in the nucleus of the cell; influenza and parainfluenza viruses accumulate in cytoplasm. The reaction response is read depending on the virus particles and their number in the cells.

Virological examination. In acute respiratory viral diseases, the material for examination can be throat swab, sputum, etc. Pathological material is treated with antibiotics (penicillin, streptomycin 1000 TB ml) before infecting a cell or a chicken embryo, to destroy other microorganisms in their content, and centrifuged. All virological work is carried out in boxes under extremely sterile conditions. The liquid on the precipitate is sucked with a pipette and transferred to cell cultures suitable for each virus (influenza virus in the amniotic and allantois cavity of chicken embryos, primary cell cultures prepared from the kidney of monkey, human embryos; parainfluenza virus in monkey, human to tissue cultures prepared

from kidney of human embryo and fibroblasts of human embryo; paratitis virus to amniotic cavity of chicken embryo and newly isolated virus strains to primary cell cultures prepared from kidney of human embryo; measles virus to primary cell cultures prepared from human embryo and monkey kidney and from except for human amnion and cultured cell cultures (Hela, KB, Vero, etc.); and infected Hela, Ner-2 cell cultures. Virus-infected chicken embryos and cell cultures were kept in a thermostat at 37º C.

Methods of indication and identification of viruses. HRT, hemadsorption, GAR and immunofluorescence methods are used to identify viruses that cause acute respiratory disease. The immunofluorescent method, unlike other methods (HRT, hemadsorption, GAR), can detect viruses even if they are present in very small amounts in the material. The immunofluorescent method is not only for finding viruses, but also for identification of viruses in cell cultures infected with parainfluenza viruses, RSV, adenoviruses and mycoplasmas. In addition, after viruses accumulate in cell cultures, it is possible to distinguish adenoviruses in KBR, parainfluenza, rubella, measles viruses in GART, KBR and neutralization reactions with specific serums.

For isolation, passage and titration of influenza viruses, they are grown in developing chicken embryos.

The presence or absence of the influenza virus in the amniotic or allantois tissue is determined using estimated GAR. Influenza A virus causes agglutination with chicken, guinea pig, and human erythrocytes of I (O) blood group, and V viruses only with chicken erythrocytes.

I percent suspension of erythrocytes is taken for titration of viruses by hemagglutination reaction. The virus titer is defined as the most diluted solution that gives agglutination of erythrocytes not less than ++ (1 ABB-one agglutination unit).

Influenza virus strains isolated from patients during epidemic or inter-epidemic periods are studied to determine their serological type. Virus types are determined by a set of specific sera using GATR.

The result of the reaction is determined by inhibition of haeagglutinasia. The virus (A, V or C) is differentiated using KBR. A subtype of virus HoN1, N1N1. H2N2, H3N2, and other antigens using a pool of homologous type-specific sera (differentiated in GATR).

Diagnostic, preventive and therapeutic drugs H0N, H1N1, H2N2, H3N2, V and C influenza sera. It is used to identify influenza virus serotypes in GATR and KBR reactions.

Live flu vaccine. Vaccine strains of the main influenza virus serotypes are prepared from the allantoic fluid of infected chicken embryos, one type of vaccine is administered nasally, and the other is administered orally.

Multivalent influenza serum used for treatment and prevention. It is obtained as a result of hyperemia of horses with different serotypes of the influenza virus. In dried form, it is prepared together with antibiotics and sulfonamides. It is administered through the nose for the prevention and treatment of influenza.

Donor immunoglobulin against influenza. It is prepared from blood serum of donors vaccinated with live influenza vaccine of type A and V. It is used for the prevention and treatment of influenza in epidemic outbreaks.

Human leukocyte interferon. It is a type-specific protein, synthesized by human peyocytes in the culture medium in response to virus-interferonogen exposure. It is used in the prevention and treatment of influenza and other viral respiratory diseases.

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