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IMMUNODEFICIENCY INFECTIOUS DISEASES

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Abstract: The idea that infection is a process completely dependent on the microorganism dominates the minds of doctors. The same major disorders in the body's immune system that precede it, i.e. immunodeficiencies are ignored. Hence the main therapeutic doctrine - to destroy the microorganism by any means, which causes the emergence of increasingly resistant variants, and attempts to "sterilize" the macroorganism induce dysbiosis and chronic forms of immunopathology.

Keywords: Infection, treatment, microorganism, method, diagnosis.

INTRODUCTION

Despite certain successes in their use, in recent decades, more and more data have accumulated on their ineffectiveness and the alarmingly growing resistance of microbes to them. In this regard, a new infection control strategy is needed.

Infectious diseases are a large group of human diseases caused by pathogenic viruses, bacteria, rickettsia, fungi and protozoa in sensitive macroorganisms [1]. They are the leading cause of death in the world, killing about 17 million people every year. New infections have appeared - HIV infection, Ebola fever, atypical pneumonia, etc. There is an activation of previously known diseases - tuberculosis, hepatitis, malaria due to the variability of microorganisms and modulation of the immunoreactivity of people towards increasing their sensitivity.

MATERIALS AND METHODS

Infection (infectious process) is a pathological process in the body that occurs as a result of the interaction between a pathogenic microorganism and the cells and tissues of a non-immune, sensitive macroorganism, accompanied by the proliferation of the microorganism, changes in the reactivity of the macroorganism, and tissue damage [2]. Infection is one of the possible results of the interaction between micro- and macroorganisms. Another, probably more common, is natural resistance, the emergence of immunity or its strengthening (if present).

RESULTS AND DISCUSSION

Although the induction and intensity of the infectious process depend on the dose, virulence, and route of entry of the pathogen, the main thing is the degree of insufficiency of the natural or acquired immunity of the macroorganism. It is the lack of immunity - relative (to a given pathogen) or absolute immunodeficiency - in each specific situation that serves as the determining factor in the development of infection.

The main condition for the occurrence of an infectious process is the susceptibility of the macroorganism, i.e. insufficiency of his immunity (immunodeficiency), when even an opportunistic microorganism can cause an infection. A highly virulent pathogen that has penetrated the internal environment of the body can overcome the resistance of a normal, but not immune, macroorganism [3].

An infectious disease, therefore, is primarily an immunodeficiency disease in an individual, when the pathogenicity of the invading infection is greater than his "immune capabilities" at the time of infection.

The ability of the human body to resist various microorganisms is due to two mechanisms: nonspecific anti-infective resistance, which is immediately aimed at many infectious agents, and the development of specific acquired immunity to specific microorganisms.

Obligate pathogenic bacteria of particularly dangerous infections (plague, anthrax, etc.) have high virulence, factors for suppressing and overcoming the natural barriers of immunity of a normal body, but not immune to them (relative immunodeficiency). To protect against them, preliminary activation of the immune system (IS), induction of antibodies and/or immune T cells is required, i.e. creating immunity, then these bacteria cannot overcome it.

The result of the interaction between microbes and the macroorganism can be non-sterile immunity, when pathogenicity factors and immunity are balanced; sterile immunity – freedom from infection; infection - reproduction of a virulent microbe. Only when a large dose of highly virulent microorganisms enters a healthy body can its protective barriers and immunity be overcome, when the ratio of the infectious dose per unit of protective factor, for example per one phagocyte, exceeds a certain critical level and the phagocyte is unable to absorb and digest a given number of microbes. In such a situation ([dose + virulence] > [barriers + immunity]), relative immunodeficiency is observed, which is typical for particularly dangerous bacterial infections (plague, anthrax, cholera), some viral infections (rabies, hemorrhagic fevers, etc.). However, even with the development of plague epidemics in ancient times, some people remained healthy due to increased natural resistance and immunity. After effective vaccination, highly virulent microorganisms can no longer overcome acquired (adaptive) immunity.

Immunodeficiency (ID) - relative or absolute - is the main cause of infections, since with increased immunity after vaccination, resistance to many highly virulent pathogens occurs. Thus, by vaccinating the population, smallpox, which killed millions of people, was eliminated; immunity to measles, polio, influenza, hepatitis B, tick-borne encephalitis, yellow fever and other infections is induced [4]. This proves that even highly virulent pathogens cannot overcome the body's pre-mobilized immune barriers. Consequently, the virulence of infectious agents is not absolute, and an organism with a fairly high degree of specific and nonspecific SI activity, i.e. immune, able to resist it. It follows that resistance, the body's immunity, and not the virulence of the pathogen, is the determining factor in the development of any infection.

CONCLUSION

The main strategy to combat infections as a consequence of immunodeficiencies in the 21st century should be an immunoprophylactic increase in population and individual nonspecific and specific resistance - immunity in people.

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