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CAUSAL RELATIONSHIP OF IMMUNO-MICROBIOLOGICAL PARAMETERS IN TUBERCULOSIS WITH MULTIPLE AND EXTENSIVE DRUG RESISTANCE

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Tuberculosis (TB) remains one of the most common infectious diseases caused by the bacterium Mycobacterium tuberculosis. In recent decades, an increase in cases of tuberculosis caused by multiple resistant (MDR) and extensively resistant (XDR) strains to anti-tuberculosis drugs has been registered. These forms of TB pose a serious public health threat as they require long and complex treatment and have high mortality rates.

Upon contact with M. tuberculosis, the body's immune system mobilizes defense mechanisms in response to the infection. However, MDR and XDR strains are of particular concern because they have developed resistance to the main anti-tuberculosis drugs. This leads to a violation of the effectiveness of treatment and complicates the fight against infection.

Studies have shown that MDR and XDR strains of M. tuberculosis are able to reduce the host's immune response and modulate the activity of immune system cells. This is achieved by altering the expression of cytokines, chemokines, growth factors, and other immune mediators. These changes affect the function of macrophages, lymphocytes, neutrophils, and other cells responsible for destroying the pathogen.

One of the main components of the immune response in tuberculosis are T-lymphocytes. Studies have shown that in patients with MDR and XDR forms of TB, there is a decrease in the activity and functionality of these cells. A decrease in the number and function of T-lymphocytes leads to a violation of the immune control of the infection and the progression of the disease.

In addition, MDR and XDR strains of M. tuberculosis are also able to affect the function of macrophages, cells that play an important role in killing bacteria. Studies have shown that these strains are able to inhibit the activation of macrophages and reduce their phagocytic activity. This allows the bacteria to survive and multiply inside the macrophages, resulting in a chronic infection.

Factors affecting the development and course of MDR and XDR tuberculosis

The development of MDR and XDR tuberculosis is due not only to the characteristics of microbiological strains, but also to various factors, including the patient's immunological status, adherence to treatment, the availability of effective drugs, etc.

The immunological status of the patient plays an important role in the development and course of MDR and XDR tuberculosis. Immunodeficiency conditions, such as HIV infection, reduce the body's ability to fight infection and increase the risk of developing MDR and XDR forms of TB.

Treatment adherence is also a factor influencing the development of MDR and XDR TB. Incorrect use of anti-tuberculosis drugs, missed doses or premature discontinuation of treatment

create conditions for the development of drug resistance and the emergence of MR and SR strains.

The availability of effective drugs also plays an important role in the fight against MDR and XDR TB. The limited availability of modern drugs and the high cost of treatment may limit the ability to effectively treat these forms of TB.

Conclusion

MDR and XDR TB are a major public health problem. Understanding the relationship between immune microbiological parameters and the development of these forms of TB plays an important role in the development of new diagnostic and treatment strategies. Further research in this area will help fight MDR and XDR TB more effectively and reduce its impact on public health.

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