

Annotation

Tuberculosis has always been a constant challenge throughout human history due to its infectious nature, complex immunological response, chronic progression and severe consequences. Today, Tuberculosis (TB) is considered one of the main challenges in developing countries, as well as in Georgia, therefore, the study of immune responses against *Mycobacterium tuberculosis* (MTb) is essential for the diagnosis and treatment of the disease. In this regard, a special role is played by monocytes and macrophages, which are phagocytizing cells and play a major role in protection against many pathogens, including *Mycobacterium tuberculosis* (MTb).

In our study, we phenotypically evaluated monocytes in patients with active pulmonary tuberculosis, namely classical monocytes CD14+CD16-, CD 163, CD 180 and Toll-like receptors: TLR 2, TLR 3, TLR 4. According to the results of the study, with active tuberculosis In the peripheral blood of sick patients, the rate of classical monocytes CD14+CD16- was increased compared to healthy controls, this rate is due to the functional state of classical monocytes, they are characterized by rapid migration to the site of infection, therefore, their high expression will be even in case of *Mycobacterium tuberculosis* invasion. The expression of TLR 2 and TLR 4 on peripheral blood monocytes of patients with active tuberculosis was increased compared to healthy controls, as for TLR 3, a decreasing trend was observed compared to healthy controls, suggesting that TLR 3 cannot recognize the invading pathogen, this In the case of *Mycobacterium tuberculosis*, no immune response is induced, and elevated levels of TLR 2 and TLR 4 are determined by their functional status to limit pathogen replication and induce a pro-inflammatory immune response.

As a result of the study, a decrease in the expression of CD 180 and CD 163 was observed on the monocytes of patients with active tuberculosis, which affects the functional state of monocytes, in particular, CD 180 regulates the immune responses of macrophages, and its regulatory role may be impaired in the case of *Mycobacterium tuberculosis*, while , CD 163 is a marker promoting phagocytosis and causes a weakening of the inflammatory reaction at the site of infection, in Tuberculosis, their low expression may lead to an increase in inflammation.

The classification of mononuclear cells into subgroups, the study of their phenotypic and functional properties, can play a great role in improving the diagnostic and therapeutic goals of the disease.