CLINICAL AND IMMUNOLOGICAL FEATURES OF DIFFERENT FORMS OF BRUCELLOSIS

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Relevance of the topic

Brucellosis is a widespread zoonotic infection characterized by a diverse clinical course and involvement of various organs and systems. The disease may develop as an acute, subacute, chronic, or relapsing form. Clinical manifestations commonly include fever, weakness, excessive sweating, arthralgia, myalgia, headache, and loss of appetite. The persistence of *Brucella* within macrophages plays an important role in the development of chronic infection and is closely associated with changes in cellular immunity. The aim of this study was to evaluate the clinical manifestations and immunological characteristics of different clinical forms of brucellosis.

Materials and Methods

The study included patients with laboratory-confirmed brucellosis representing different clinical forms of the disease. Clinical manifestations, disease duration, presence of systemic intoxication, and involvement of the osteoarticular, hepatobiliary, nervous, and other systems were assessed. Immunological evaluation included analysis of cellular immune parameters and cytokine-mediated responses. Particular attention was paid to the activity of the Th1 immune response and the levels of pro-inflammatory and regulatory cytokines. The obtained findings were compared according to the clinical form and duration of the disease.

Results

The clinical presentation of brucellosis was characterized by considerable heterogeneity. Acute forms were predominantly associated with fever, general weakness, sweating, headache, arthralgia, and myalgia. In prolonged and chronic forms, persistent weakness, recurrent febrile episodes, arthralgia, arthritis, and other

focal manifestations were more frequently observed. Osteoarticular involvement was among the most clinically significant manifestations.

Immunological assessment demonstrated activation of cellular immune mechanisms during active infection. The Th1-associated cytokines interferon-gamma (IFN-γ), tumor necrosis factor-alpha (TNF-α), and interleukin-12 (IL-12) play a central role in macrophage activation and elimination of intracellular *Brucella*. In chronic and relapsing forms, persistent antigenic stimulation may be accompanied by impaired T-cell activity and dysregulation of cytokine production.

Discussion

The clinical and immunological characteristics of brucellosis are closely related to the duration and form of infection. Activation of Th1-mediated cellular immunity is important for controlling intracellular *Brucella*. At the same time, insufficient or dysregulated cellular responses may contribute to bacterial persistence and the development of chronic or relapsing disease. Therefore, combined assessment of clinical manifestations and immune parameters may provide additional information for evaluating disease activity and predicting its course.

Conclusion

Different clinical forms of brucellosis are characterized by distinct clinical manifestations and changes in cellular immune responses. The predominance of systemic inflammatory symptoms in acute disease and persistent focal manifestations in chronic forms reflects the complex interaction between *Brucella* and the host immune system. Further investigation of cytokine profiles and cellular immunity may contribute to improved assessment of disease activity and prognosis.

References

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