

Letter to Editor

FEATURES OF DISEASE COURSE OF SOME FORMS OF HERPESVIRUS INFECTION

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Introduction

Nowaday the current problem of clinical immunology and infectology is human viral diseases, which are associated with a long course, lifelong persistence, chronicity of the process and adverse effects of the disease. Among the many factors that directly affect the immune system, infections caused by the herpes virus deserve special attention [1]. In recent years, there has been an increase in the number of patients suffering from chronic recurrent herpesvirus infections, which in many cases are accompanied by severe general malaise and a number of therapeutic complaints [2].

Epstein-Barr virus (EBV) belongs to the Herpesviridae family and is one of the most common infections in the world. Today about 80-95% of the population is infected with EBV [3]. Primary infection is more common in childhood or adolescence. After EBV infection, virus replication in humans and the formation of an immune response may be asymptomatic or present as minor signs of acute respiratory viral disease. In case of significant weakening of the immune system, the patient may develop a picture of infectious mononucleosis [4].

Primary infection of EBV leads to lifelong persistence of the pathogen with possible periodic reactivation under the action of various immunosuppressive factors, which leads to chronic forms of the disease. EBV can cause chronic manifest and erased forms of the disease, running on the type of chronic mononucleosis [5].

The incidence of EBV infection has increased significantly in recent years, most likely due not only to the epidemiological rise but also to the improvement of diagnostic methods. However, general practitioners are clearly insufficiently aware of chronic infection caused by EBV and its forms [6, 7].

Thus, the study of the nature of clinical and laboratory changes in patients with chronic EBV infection and the peculiarities of the disease is an urgent problem of our time.

The aim of this work was to study the features of the course of chronic EBV infection.

Material and methods

We performed a comprehensive clinical and laboratory examination of 128 patients with chronic EBV infection (reactivation period) - 68 women (53.1%) and 60 men (46.9%). The diagnosis of chronic EBV infection was established on the basis of medical history, complaints, the presence of specific antibodies to EBV antigens and the detection of virus DNA in the blood. The inclusion of

patients in the examination program was carried out according to the following criteria: diagnosed with chronic EBV infection, the presence of clinical manifestations of activation of chronic EBV infection; age of patients from 18 to 45 years, voluntary consent of the patient to participate in the study. Patients were not included in the study if they had one of the following criteria: congenital or acquired immunodeficiency, use of immunomodulatory drugs, steroids for the last 6 months, the presence of chronic comorbidities. The control group consisted of 30 clinically healthy people aged 20 to 35 years without signs of acute or any chronic pathology. In the anamnesis of life of these patients there were no data on the transferred infectious mononucleosis, at research of blood DNA of EBV was not revealed.

The work was performed at the Department of General and Clinical Immunology and Allergology, Medical Faculty of Kharkiv National University named after V.N. Karazin in the research topic: "Study of the role of immune, autoimmune and metabolic disorders in the pathogenesis and consequences of the infectious process caused by herpesviruses", state registration number № 0112U005911. Collection of tests and their technical performance was carried out in the clinical diagnostic laboratory of the Regional Clinical Infectious Diseases Hospital, part of the tests were performed in the laboratory "Virola" and "Analytics". Statistical processing of the survey results was performed using the statistical software package STATISTICA 10.0.

Results and discussion

According to the results of our study, we found that the course of chronic EBV infection was characterized by polymorphism and nonspecific clinical manifestations, which were stable and long-lasting.

The most common patients were chronic tonsillitis - 101 patients (78.9%) and chronic fatigue syndrome - 93 patients (72.6%). Peripheral lymphadenopathy occurred in 91 patients (71.1%) and was characterized mainly by enlargement of the anterior and posterior cervical lymph nodes. Prolonged subfebrile syndrome was registered in 58 patients (45.3%). Symptoms such as arthralgia, myalgia were recorded in 49 patients (38.3%). Hepatolienal syndrome was diagnosed in 13 patients (10%).

When analyzing the frequency of disease recurrences during the year, the following data were obtained: in 65 people (50.8%) there were 1-2 relapses, in 42 people (32.8%) - 3 relapses, in 21 people (16.4%) - 4 or more relapses.

A study of the clinical analysis of the blood of patients with chronic EBV infection and the control group showed some differences. Thus, in patients with chronic EBV infection, a significantly elevated ESR level was detected - 12.6 ± 1.8 versus 4.5 ± 1.1 in the control group ($p < 0.05$). Erythrocyte, hemoglobin and platelet levels did not differ significantly from the control group and were $(4.72 \pm 1.1) \times 10^{12}/l$, 129 ± 10.3 g/l and $(218 \pm 31.2) \times 10^9/l$ against $(4.43 \pm 0.9) \times 10^{12}/l$, 131 ± 9.1 g/l and $(226 \pm 30.8) \times 10^9/l$ in the control group, respectively. In patients with chronic WEB infection there was a decrease in the level of leukocytes $(5.13 \pm 0.22) \times 10^9/l$ against $(6.20 \pm 1.8) \times 10^9/l$ in the

control group ($p > 0.05$), but these changes did not go beyond the norm established for healthy individuals.

Analysis of the leukocyte formula revealed the presence of patients with chronic WEB infection with a significant increase in the relative content of lymphocytes - $42.50 \pm 2.0\%$ against $33.70 \pm 2.68\%$ ($p < 0.05$) and monocytes - $11.15 \pm 0.9\%$ vs. $3.0 \pm 0.6\%$ ($p < 0.05$), which was the basis for confirming the presence of a chronic infectious process. In general, 94.8% of patients with chronic EBV infection had lymphocytosis and 82.5% had monocytosis. The relative number of neutrophils in patients with chronic WEB infection averaged $45.35 \pm 4.1\%$ against $61.7 \pm 3.8\%$ in the control group ($p < 0.05$); the relative number of eosinophils and basophils was within normal limits and in patients with chronic VEB infection averaged $1.0 \pm 0.4\%$ and $0.4 \pm 0.08\%$ against $1.0 \pm 0.4\%$ and $0.6 \pm 0.07\%$ in the control group, respectively, and did not differ in statistical significance ($p > 0.05$).

When studying the absolute number of lymphocytes and monocytes in patients with chronic EBV infection, there was a tendency to increase them and their level was on average $(2.13 \pm 0.7) \times 10^9/l$ and $(0.51 \pm 0.08) \times 10^9/l$ against $(2.39 \pm 0.7) \times 10^9/l$ and $(0.47 \pm 0.08) \times 10^9/l$ in the control group ($p > 0.05$). The absolute number of neutrophils in patients with chronic WEB infection was significantly lower than in the control group and was $2.70 \times 10^9/l$ versus $4.21 \times 10^9/l$ ($p < 0.05$). In the study of the absolute number of eosinophils and basophils in patients with chronic EBV infection, no statistically significant differences were found compared with the control group and their level was for eosinophils - $(0.13 \pm 0.04) \times 10^9/l$ against $(0.15 \pm 0.03) \times 10^9/l$ ($p > 0.05$), for basophils - $(0.03 \pm 0.008) \times 10^9/l$ against $(0.03 \pm 0.005) \times 10^9/l$, respectively ($p > 0.05$).

Conclusion

Thus, according to the results of our study, we found that patients with chronic EBV infection among the clinical manifestations were most often chronic tonsillitis, chronic fatigue syndrome and peripheral lymphadenopathy.

Analysis of the results of laboratory studies revealed a significant increase in ESR, relative lymphocytes and monocytes, as well as a decrease in absolute and relative neutrophils, compared with the control group of patients, indicating a shift in white blood cell count, characteristic of the viral etiology of the disease what associated with the EBV.

References

1. Kramarev S.A., Vygovskaya A.V. Chronic forms of the Epstein-Barr virus infection in children: current approaches to diagnosis and treatment. Modern pediatrics. 2008. 2(19). P. 103-108.
2. Duda O. K., Kolesnik R.O., Okruzhnov M.V., Boyko V.O. Clinical forms of Epstein-Barr viral infection: questions of modern diagnostics and treatment. Current infectology. 2015. № 1 (6). P. 42-46.
3. Malfuson J.V., Dutasta F., Konopacki J. [et al.]. Infectious mononucleosis and monoclonal B lymphocytosis in an elderly man. J. Am. Geriat. Soc. 2011. 59(11). P. 2156-2157.

4. Cengiz A.B. Infectious mononucleosis in Turkish children. Turk. J. Pediatr. 2010. 52(3). P. 1-8.

5. Vigovskaya O. V., Kramarev S. A., Doroshenko V.A., Shpak I.V. Infectious mononucleosis of Epstein-Barr virus etiology: etiology, pathogenesis, immunogenesis, treatment. Attending physician. 2012. N. 4. P. 29-34.

6. Kolesnik Ya., Zharkova T., Rzhetskaya O., et al. Clinical and immunological criteria for adverse course of infectious mononucleosis in children. Georgian medical news. 2018. 5 (278). P. 132-138.

7. Popov M., Lyadova T., Volobuyeva O., et al. Cytokine production peculiarities in different forms of Epstein-Barr virus infection. Georgian medical news. 2017. 2 (263). C. 55-59.

Features of disease course of some forms of herpesvirus infection

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Among the many factors that directly affect the immune system, infections caused by the herpes virus deserve special attention. In recent years, there has been an increase in the number of patients suffering from chronic recurrent herpesvirus infections, which in many cases are accompanied by severe general malaise and a number of therapeutic complaints. Today about 80-95% of the population is infected with Epstein-Barr virus EBV. Primary infection of EBV leads to lifelong persistence of the pathogen with possible periodic reactivation under the action of various immunosuppressive factors, which leads to chronic forms of the disease. EBV can cause chronic manifest and erased forms of the disease, running on the type of chronic mononucleosis. Thus, the study of the nature of clinical and laboratory changes in patients with chronic EBV infection and the peculiarities of the disease is an urgent problem of our time. The aim of this work was to study the features of the course of chronic EBV infection. We performed a comprehensive clinical and laboratory examination of 128 patients with chronic EBV infection (reactivation period). The diagnosis of chronic EBV infection was established on the basis of medical history, complaints, the presence of specific antibodies to EBV antigens and the detection of virus DNA in the blood. Studies of clinical blood tests of patients with chronic EBV infection and the control group showed differences. Thus, in patients with chronic EBV infection, a significantly elevated ESR level was found - 12.6 ± 1.8 versus 4.5 ± 1.1 in the control group ($p < 0.05$). The levels of erythrocytes, hemoglobin and platelets did not differ significantly from the control group. In patients with chronic EBV infection, there was a decrease in the level of leukocytes $(5.13 \pm 0.22) \times 10^9/l$ against $(6.20 \pm 1.8) \times 10^9/l$ in the control group ($p > 0.05$), but these changes did not go beyond the norms established for healthy people. Analysis of the leukocyte formula revealed the presence of patients with chronic WEB infection with a significant increase in the relative content of lymphocytes - $42.50 \pm 2.0\%$ against $33.70 \pm 2.68\%$ ($p < 0.05$) and monocytes - $11.15 \pm 0.9\%$ vs. $3.0 \pm 0.6\%$ ($p < 0.05$), which was the basis for confirming the presence of a chronic infectious process. In general, 94.8% of patients with chronic EBV infection had lymphocytosis and 82.5% had monocytosis.

The relative number of neutrophils in patients with chronic WEB infection averaged $45.35 \pm 4.1\%$ against $61.7 \pm 3.8\%$ in the control group ($p < 0.05$); the relative number of eosinophils and basophils was within normal limits. When studying the absolute number of lymphocytes and monocytes in patients with chronic EBV infection, there was a tendency to increase them and their level was on average $(2.13 \pm 0.7) \times 10^9/l$ and $(0.51 \pm 0.08) \times 10^9/l$ against $(2.39 \pm 0.7) \times 10^9/l$ and $(0.47 \pm 0.08) \times 10^9/l$ in the control group ($p > 0.05$). The absolute number of neutrophils in patients with chronic WEB infection was significantly lower than in the control group and was $2.70 \times 10^9/l$ versus $4.21 \times 10^9/l$ ($p < 0.05$). The study of the absolute number of eosinophils and basophils in patients with chronic EBV infection did not reveal statistically significant differences compared with the control group. Thus, according to the results of our study, we found that patients with chronic EBV infection among the clinical manifestations were most often chronic tonsillitis, chronic fatigue syndrome and peripheral lymphadenopathy. Analysis of the results of laboratory studies revealed a significant increase in ESR, relative lymphocytes and monocytes, as well as a decrease in absolute and relative neutrophils, compared with the control group of patients, indicating a shift in white blood cell count, characteristic of the viral etiology of the disease what associated with the EBV.

Keywords: herpesvirus infections, chronic EBV infection, course of the disease, clinical and laboratory parameters, immune system.

Received: 19.09.2020

Published: 21.09.2020