

CURRENT ASPECTS OF EPIDEMIOLOGICAL AND CLINICAL ISSUES OF EPSTEIN-BARR VIRUS INFECTION IN CHILDREN

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Abstract

This article discusses the clinical presentation of infectious mononucleosis in 142 children aged between 1 and 14 years living in the Samarkand region. It was determined that the disease continues to manifest all its characteristic clinical features at present. Timely and accurate diagnosis of infectious mononucleosis leads to effective treatment, demonstrated by a decrease in fever duration, a reduction in the severity of lymph node proliferation, and a quicker resolution of the cytolytic process.

Keywords: Atypical mononuclear cells, children, Epstein-Barr virus (EBV), infectious mononucleosis.

Introduction

Infectious mononucleosis caused by the Epstein-Barr virus is a significant infectious disease in children. Most children recover without complications; however, the Epstein-Barr virus can remain latent in the body for life. In a minority of cases, this persistent infection may trigger conditions like lymphoproliferative syndrome, cancerous changes, chronic fatigue syndrome, and hemophagocytic syndromes. Currently, the Epstein-Barr virus (a type of herpes virus) is identified as the causative agent in 90-95% of infectious mononucleosis cases. Other viruses, such as human immunodeficiency virus, adenovirus, cytomegalovirus, and herpes virus type VI, may be responsible for the remaining cases. According to the International Classification of Diseases (ICD), infectious mononucleosis is categorized based on the identified pathogens, which include Epstein-Barr virus (B27.0), cytomegalovirus (B27.1), infectious mononucleosis of other origins (B27.8), and unknown etiology (B27.9) when the cause remains unidentified in symptomatic patients.

Currently, there is no specific antiviral treatment for infectious mononucleosis. The treatment during the acute phase focuses on inhibiting the replication of the Epstein-Barr virus and promoting an appropriate immune response.

The objective of this study is to examine the distinctive clinical characteristics of infectious mononucleosis caused by the Epstein-Barr virus in children living in the Samarkand region.



Methods and Materials:

Comparative and clinical assessments, as well as general and biochemical analyses of biological samples, and PCR testing were conducted on patients treated at the Samarkand Regional Infectious Diseases Clinical Hospital from 2007 to 2023. A total of 142 children aged 1 to 14 years diagnosed with infectious mononucleosis were studied.

Results and Discussion:

The analysis of the data showed that infectious mononucleosis displays a distinct seasonal pattern. The disease was predominantly observed in the winter and spring months (24% and 46% of cases, respectively), while fewer cases were recorded in the other seasons (30%).

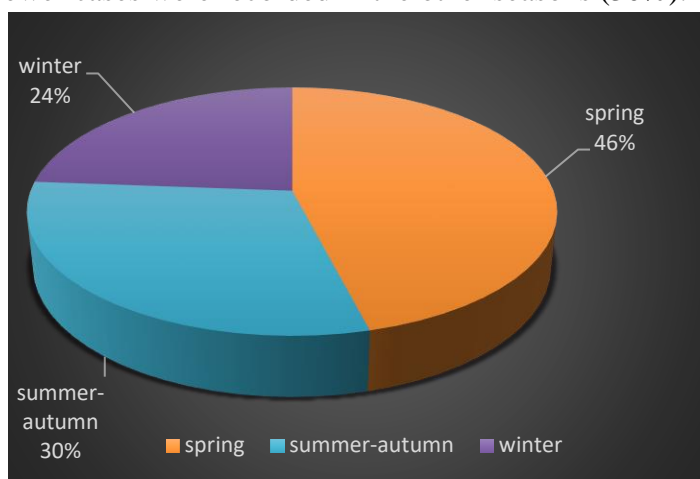


Figure 1. Seasonality of infectious mononucleosis

When examining the gender distribution of the disease, it was found that 51% of the affected individuals were boys, while girls accounted for 49% (see Figure 2).

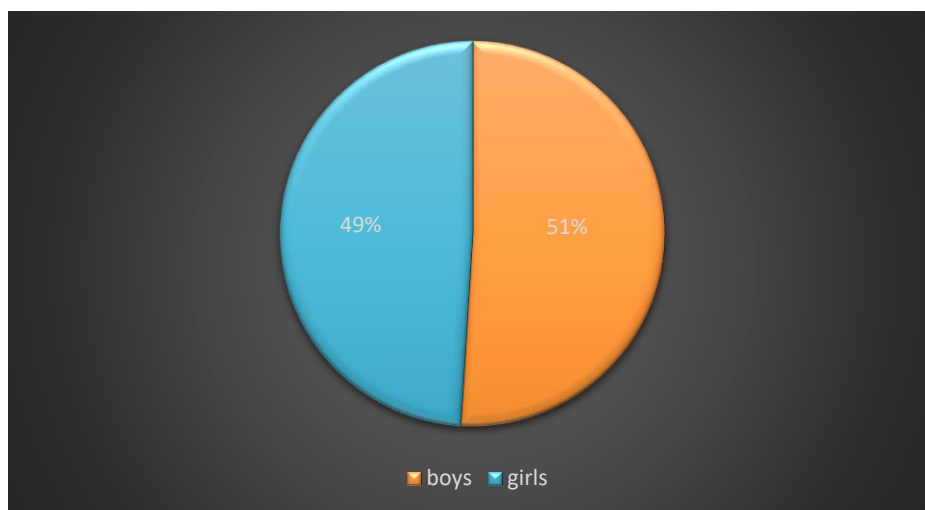
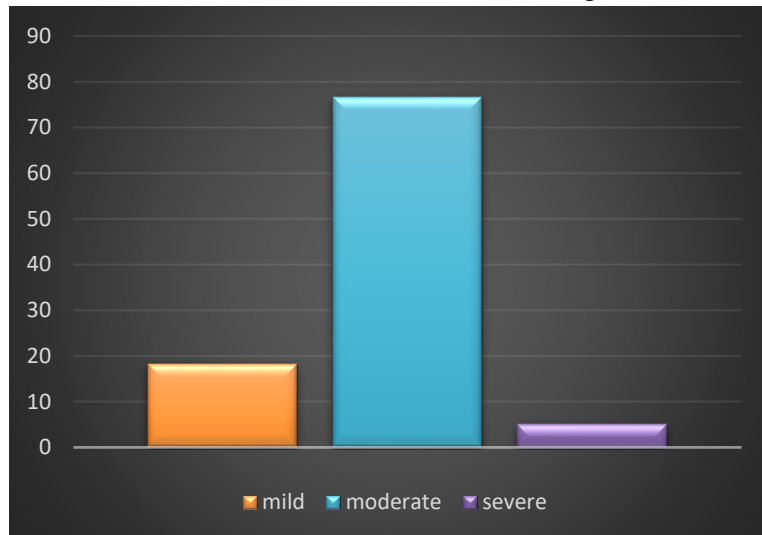


Figure 2. Gender distribution of the disease



During our investigation, we noted that 28.9% of the patients diagnosed with infectious mononucleosis sought medical attention late. This delay may be due to the clinical manifestations of infectious mononucleosis being obscured by symptoms of other concurrent illnesses.

In assessing the clinical progression of the disease, the severity was classified as follows: mild (18.2%), moderate to severe (76.7%), and severe (5.1%) (see Figure 3).



Picture 3. Disease severity degrees according to distribution

Throughout the clinical progression of the illness, the primary symptoms observed included: rhinitis (96%), fever ranging from subfebrile to febrile (91.4%), enlargement of the liver and spleen (91.7%), tonsillitis (also known as monocytic angina) (84.2%), hyperplasia of lymph nodes (67.2%), adenoiditis (11.5%), and exanthema (18.7%) (see Figure 4).

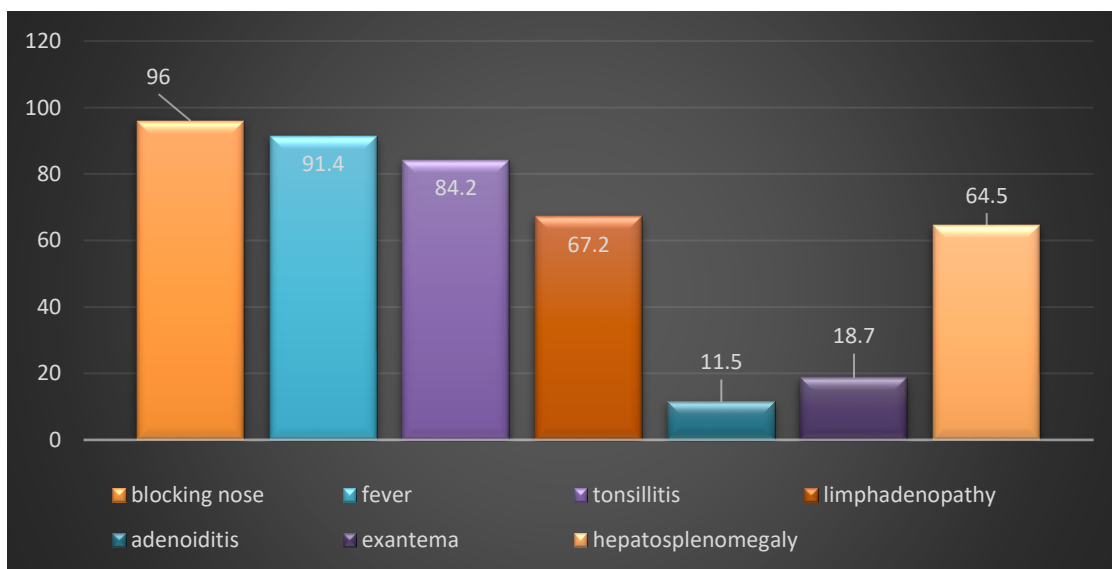


Figure 4. Clinical signs of the disease.

In our analytical discussion regarding the diagnostic criteria of the illness, we conducted comprehensive analyses of blood, urine, and stool samples, along with biochemical blood



assessments. Hematological changes revealed lymphocytic leukocytosis and the presence of atypical mononuclear cells. PCR testing was carried out to detect the DNA of the Epstein-Barr virus in the bloodstream for confirmation. Chest X-rays were performed as part of the protocol, and all patients underwent ultrasound examinations.

Treatment for all patients adhered to established care protocols, which included detoxification therapy, symptomatic management, and antibiotic treatment based on clinical guidelines. Additionally, recombinant interferon inducers were utilized to boost the immune response. Dosages for all medications were tailored according to the patient's age, weight, and the recommended dosages outlined in the product instructions.

Conclusion:

Our findings indicate that the disease exhibits a seasonal pattern, predominantly occurring during the winter and spring months. Infectious mononucleosis continues to present with all of its characteristic clinical features. Prominent symptoms include fever, runny nose, and hepatosplenomegaly. Early diagnosis is vital for alleviating symptoms associated with cytolytic syndrome and mesenchymal inflammation.

References:

1. Infectious Mononucleosis Krasnov, M.V., Stekolshikova, I.A., Borovkova, M.G., Andreeva, L.V. (2015). Contemporary Issues in Science and Education, 2, 24-26.
2. Infectious Mononucleosis and Herpes Virus Detection Kasimova, E.B., Bashkina, O.A., Galimzyanov, X.M., Netalieva, S.J. (2012). Infectious Diseases, 10(3), 44-47.
3. Herpetic Infections and Mononucleosis-Like Syndromes Kramar, L.V., Karpukhina, O.A. (2016). Volgograd: VolgGMU Publishing, 292 pages.
4. Complex Therapy for Epstein-Barr Virus Infections Kramar, L.V., Karpukhina, O.A. (2012). Archive of Internal Medicine, 1(3), 25-29.
5. Nasopharyngeal Extraction of Streptococcus pneumoniae in Adults with Acute Respiratory Infections Tuychiev, L.N. et al. (2022). Art of Medicine: International Medical Scientific Journal, 2(1).
6. Frequency of Streptococcus pneumoniae Isolation in Acute Respiratory Infections Rabbimova, N.T., Matyakubova, F.E., Tirkashev, O.S. (2021). VolgaMedScience, 589-591.
7. Antimicrobial Susceptibility of Streptococcus pneumoniae Isolated from Adults Tuychiev, L.N. et al. (2021). Journal of Hunan University (Natural Science Edition), 48(11).
8. Mathematical Modeling and Forecasting of Cutaneous Leishmaniasis Incidence in Uzbekistan Rabbimova, N. et al. (2017). Journal of Problems in Biology and Medicine, 1(93), 104-107.
9. Identification of Leishmaniasis Pathogen Species Using PCR Suvonkulov, U. et al. (2016). Journal of Problems in Biology and Medicine, 3(89), 91-92.
10. Clinical and Epidemiological Features of Shigellosis in Adults from 2009 to 2019 Egamovna, M.F. et al. (2022). Web of Scientist: International Scientific Research Journal, 3(5), 1285-1294.





11. Nasopharyngeal Carriage of Streptococcus pneumoniae in Adults
Abdulkhalilova, G.K. et al. (2022).
12. Dynamics of Antibiotic Resistance and Nasopharyngeal Carriage of Streptococcus pneumoniae in Adults with Acute Respiratory Infections
Abdulkhalilova, G.K. et al. (2022).
13. Chronic Hepatitis Characteristics Against the Background of Tuberculosis
Yarmukhamedova, N. et al. (2019). Bulletin of the Physician, 1(1), 129-132.
14. Clinical and Epidemiological Features of Shigellosis in Adults
Anvarovna, Y.N., Egamovna, M.F., Tashtemirovna, R.N., Buribayevna, M.G., Saidovich, T.O. (2021). Central Asian Journal of Medical and Natural Science, 2(3), 311-318.
<https://doi.org/10.47494/cajmns.v2i3.221>
15. Epidemiological Characteristics of Measles in Samarkand Region
Tirkashev, O.S., Matyakubova, F.E., Rabbimova, N.T. (2021). In Proceedings of the 7th All-Russian Conference of Young Scientists and Students with International Participation (pp. 624-625). Nizhny Novgorod: Privolzhsky Research Medical University.
16. Current Stage of Measles
Tirkashev, O.S. et al. (2022). Web of Scientist: International Scientific Research Journal, 3(5), 177-185.

