

# RECENT EPIDEMIOLOGICAL AND CLINICAL INSIGHTS INTO EPSTEIN–BARR VIRUS INFECTION IN CHILDREN

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## Abstract

This article summarizes the characteristics of the clinical course of infectious mononucleosis observed in 142 children aged 1 to 14 years residing in the Samarkand region. The findings indicate that, at the present stage, the disease continues to demonstrate its typical clinical manifestations. Timely and precise diagnosis of infectious mononucleosis significantly enhances treatment outcomes, as reflected by a shorter duration of fever, reduced intensity of lymph node proliferative syndrome, and more rapid resolution of cytotoxicity.

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

## Introduction

Epstein-Barr virus infectious mononucleosis is one of the main infectious diseases in childhood [3,5,7,11]. In most children, the disease ends with a good outcome, without complications, but the Epstein-Barr virus can remain in the body of an infected person for life. In a small number of children, the preservation of the virus in such a state can serve as a stimulus for the development of processes such as lymphoproliferative syndrome, oncological pathological changes, chronic fatigue syndrome, and hemophagocytic syndromes [7,9,12].

Currently, the known Epstein-Barr virus (herpes virus type IV) does not always serve as an etiological factor of acute infectious mononucleosis; however, it accounts for 90-95% of all cases. In the remaining cases, the disease may be caused by other types of viruses such as human immunodeficiency virus, adenovirus, cytomegalovirus, and herpes viruses of type VI [2,10,13]. According to the ICD, infectious mononucleosis is classified depending on the causative agents of the disease as follows: Epstein-Barr virus (B27.0); cytomegalovirus (CMV) (B27.1); infectious mononucleosis of other etiology (B27.8); infectious mononucleosis of unknown etiology (B27.9) if the etiological cause of the disease is not determined in patients with clinical symptoms characteristic of infectious mononucleosis.



Etiotropic treatment for infectious mononucleosis has not been developed to date. Treatment of infectious mononucleosis in the acute period aims to reduce the replication of the Epstein-Barr virus and to induce an adequate immune response [4, 6,8,14,15].

**The aim** of this study is to investigate the specific clinical features of infectious mononucleosis of Epstein-Barr virus etiology in children residing in the Samarkand region.

**Methods and Materials:**

Comparative and clinical examinations, general and biochemical analysis of biomaterials, and PCR examination methods were conducted on patients treated at the Samarkand Regional Infectious Diseases Clinical Hospital from 2007 to 2023. A total of 142 patients aged 1 to 14 years diagnosed with infectious mononucleosis were monitored.

**Results and Discussion:**

Analysis of the obtained results revealed that infectious mononucleosis exhibits clear seasonality. Throughout the year, the incidence of this disease was primarily recorded in the winter and spring months (24% and 46.0%, respectively), with a lower percentage of cases occurring in other seasons (30%). (Fig. 1).

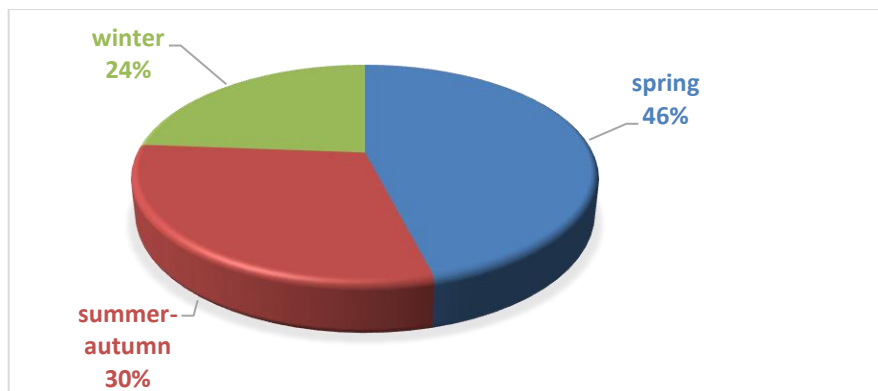


Figure 1. Seasonality of infectious mononucleosis

When the gender incidence of the disease was studied, the ratio of boys to girls was analyzed. The percentage of boys affected was 51%, while the percentage of girls affected was 49%( Figure 2).

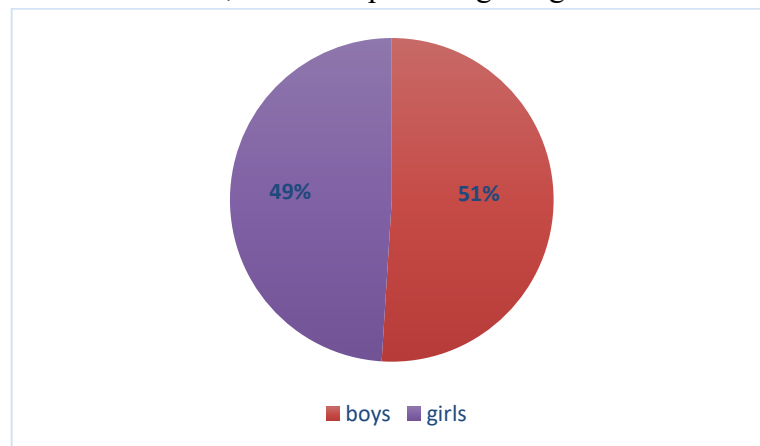


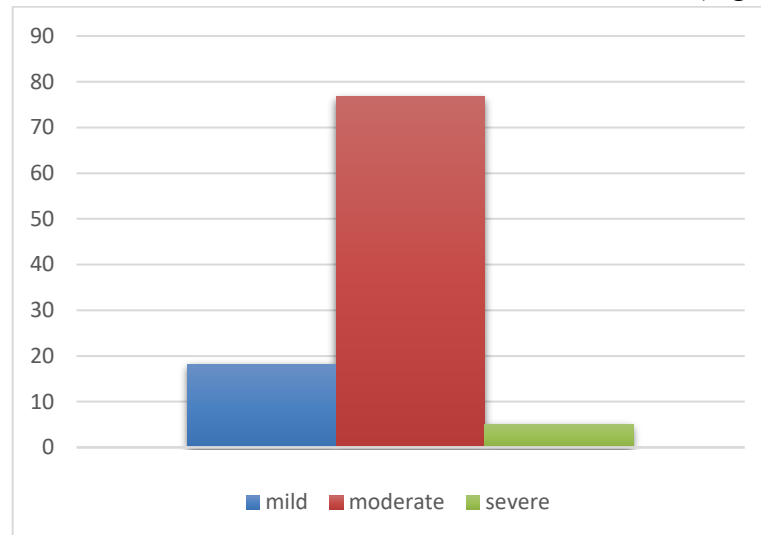
Figure 2. Gender distribution of the disease





In the course of our research, we discovered that 28.9% of patients diagnosed with infectious mononucleosis arrived at the hospital late. This delay may be attributed to the clinical symptoms of infectious mononucleosis being masked by the symptoms of coexisting diseases.

When evaluating the clinical course of the disease, the severity was categorized as follows: mild course - 18.2%, moderate to severe course - 76.7%, severe course - 5.1% (Figure 3).



Picture 3. Disease severity degrees according to distribution

In the clinical course of the disease, the main clinical signs observed in the past include the following pointers: rhinitis (96%), elevation of body temperature from subfebrile to febrile degree (91.4%), enlargement of the liver and spleen (91.7%), tonsillitis (monocytic angina) (84.2%), lymph node hyperplasia (67.2%), adenoiditis (11.5%), and exanthema (18.7%) (Fig. 4).

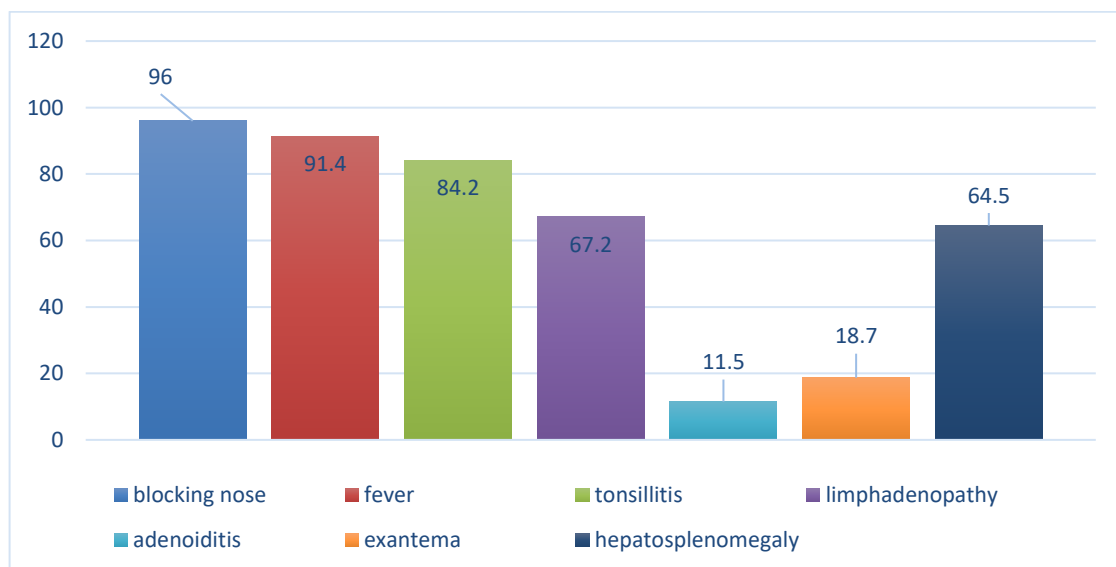


Figure 4. Clinical signs of the disease.

In the analytical discussion of the diagnostic basis of the disease, general blood, urine, and stool analyses, as well as blood biochemical analysis, were conducted. Lymphocytic leukocytosis and atypical mononuclear cells were identified from hematological changes, and PCR testing was performed to detect Epstein-Barr virus DNA in the blood for verification. Chest X-rays were carried out using instrumental examination methods as per protocol, and all patients underwent ultrasound examination.

All patients received treatment according to standard care protocols, including detoxification therapy, symptomatic relief, and antibiotic therapy guided by clinical instructions. Recombinant interferon inducers were administered to stimulate the immune system. Dosages of all medications were adjusted based on the patient's age, body weight, and recommended dosages in the instructions.

### Conclusion:

Our research revealed that the seasonality of the disease primarily corresponds to the winter and spring months. Infectious mononucleosis retains all its clinical features at the present stage. Fever, runny nose, and hepatosplenomegaly were identified as prominent clinical signs. Early diagnosis of the disease plays a crucial role in reducing symptoms of cytolytic syndrome and mesenchymal inflammation.

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