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### **INFECTIOUS MONONUCLEOSIS: CLINICAL AND LABORATORY FEATURES IN CHILDREN OF THE SAMARKAND REGION**

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**Annotation.** Infectious mononucleosis (IM) is a clinically significant viral infection caused predominantly by the Epstein–Barr virus (EBV), a member of the Herpesviridae family. Approximately 80–90% of the global population acquires EBV infection during their lifetime. Early and accurate identification of infectious mononucleosis contributes to improved treatment outcomes, especially through reducing the duration of fever, lowering lymphoid tissue proliferation, and accelerating the resolution of hepatocellular cytolysis.

**Key words:** infectious mononucleosis, Epstein–Barr virus (EBV), atypical mononuclear cells, children, clinical features

### **SAMARQAND VILOYATI BOLALARIDA INFEKSION MONONUKLYOZNING KLINIK VA LABORATOR XUSUSIYATLARI**

**Annotatsiya.** Infektsion mononuklyoz (IM) – asosan Herpesviridae oilasiga mansub Epstein–Barr virusi (EBV) tomonidan chaqiriladigan klinik jihatdan muhim virusli infeksiyadir. Aholining taxminan 80–90% umri davomida EBV infeksiyasini yuqtiradi. Infektsion mononuklyozni erta va aniq aniqlash davolash natijalarini yaxshilaydi, xususan, isitma davomiyligini kamaytiradi, limfoid to‘qimalarning ko‘payishini pasaytiradi va hepatotsellulyar sitolizning tezroq qaytishiga yordam beradi.

**Kalit so‘zlar:** infektsion mononuklyoz, Epstein–Barr virusi (EBV), atipik mononuklear hujayralar, bolalar, klinik belgilari.

### **КЛИНИЧЕСКИЕ И ЛАБОРАТОРНЫЕ ОСОБЕННОСТИ ИНФЕКЦИОННОГО МОНОНУКЛЕОЗА У ДЕТЕЙ САМАРКАНДСКОЙ ОБЛАСТИ**

**Аннотация.** Инфекционный мононуклеоз (ИМ) — клинически значимая вирусная инфекция, вызываемая преимущественно вирусом Эпштейна–Барр (ВЭБ), относящимся к семейству Herpesviridae. Около 80–90% населения мира инфицируется ВЭБ в течение жизни. Ранняя и точная диагностика инфекционного мононуклеоза способствует улучшению результатов лечения,



в частности сокращает продолжительность лихорадки, уменьшает пролиферацию лимфоидной ткани и ускоряет разрешение гепатоцеллюлярного цитолиза.

**Ключевые слова:** инфекционный мононуклеоз, вирус Эпштейна–Барр (ВЭБ), атипичные мононуклеарные клетки, дети, клинические проявления.

### **Introduction**

Infectious diseases continue to be a dominant component of global morbidity. WHO projections indicate that in the 21st century, viral infections will play an increasingly significant role in overall disease burden. Among viral pathogens, herpesviruses represent a particularly relevant group due to their lifelong persistence in the human body.

Epstein–Barr virus, one of the most studied herpesviruses, is responsible for infectious mononucleosis — a disease frequently observed in children and adolescents. EBV infection is notable for:

- its high rate of global prevalence,
- ability to establish lifelong latency in B lymphocytes,
- potential to trigger immune dysregulation and contribute to secondary immunodeficiency.

Despite spontaneous recovery in most cases, EBV infection may lead to long-term consequences, including chronic fatigue syndrome, autoimmune disorders, and in rare cases, oncological complications (e.g., Burkitt lymphoma, nasopharyngeal carcinoma), particularly in genetically predisposed individuals.

Considering the increasing incidence of EBV-associated diseases worldwide, studying infectious mononucleosis in regional pediatric populations is clinically important.

### **Purpose of the Study**

To investigate the clinical manifestations, epidemiological characteristics, and laboratory indicators of infectious mononucleosis caused by Epstein–Barr virus in children hospitalized in the Samarkand region.

### **Materials and Methods**

The study included 21 children aged 3–10 years treated at a regional infectious disease hospital. Inclusion criteria:

- typical clinical symptoms of infectious mononucleosis,
- laboratory confirmation of EBV infection.

### **Diagnostic procedures performed:**

| Diagnostic category      | Methods used                                                               |
|--------------------------|----------------------------------------------------------------------------|
| Clinical evaluation      | ENT examination, evaluation of lymph node involvement, abdominal palpation |
| General laboratory tests | CBC, urinalysis, stool examination                                         |
| Specific diagnostics     | <b>PCR for EBV DNA in serum</b> , detection of atypical mononuclear cells  |

Patients were classified by age, sex, severity of disease, and organ involvement (lymph nodes, liver, spleen). Disease severity was graded according to standard pediatric infectious disease guidelines.

### **Results and Discussion**

Most children (57.1%) were between 3–7 years old, demonstrating the predominance of EBV infection in preschool-aged patients. Boys constituted 66.7% of cases.

A significant proportion of children initially received treatment from ENT specialists for incorrectly diagnosed tonsillitis, which delayed correct diagnosis and led to hospitalization in the second week of illness.

### **Symptoms observed:**

| Clinical manifestation | % of children |
|------------------------|---------------|
|------------------------|---------------|



|                      |       |
|----------------------|-------|
| Sore throat          | 90.5% |
| Nasal obstruction    | 85.7% |
| Headache             | 85.7% |
| Malaise and weakness | 76.2% |
| Cough                | 28.6% |
| Excessive sweating   | 71.4% |

Hyperthermia was recorded in all children prior to hospitalization. Fever lasted 8–11 days and showed an irregular pattern.

Pharyngeal examination revealed otorhinolaryngologic forms of tonsillitis:

- Catarrhal — 52.4%
- Follicular — 28.6%
- Lacunar — 19%

**Lymphadenopathy** was bilateral in all cases. Lymph nodes ranged from pea-sized to walnut-sized and remained mobile and non-adherent—signs consistent with benign reactive lymphoid hyperplasia.

Due to delayed hospitalization, organ enlargement was frequently observed:

| Organ change | % of children |
|--------------|---------------|
| Hepatomegaly | 85.7%         |
| Splenomegaly | 57.1%         |

CBC revealed leukocytosis in most children, reaching up to  $25.0 \times 10^9/L$  in severe cases. Mild anemia was detected in 85.7% of patients.

Atypical mononuclear cells — the key diagnostic marker of infectious mononucleosis — were present in 76.2% of children.

Biochemical liver abnormalities correlated with hepatomegaly: elevated AST and ALT levels were documented, although bilirubin and thymol tests remained normal, indicating moderate cytolytic syndrome without cholestasis.

### **Conclusion**

The study demonstrates that:

- Infectious mononucleosis in children of the Samarkand region occurs predominantly in a moderate clinical form.
- Most patients present late (on days 7–14), which increases the risk of hepatosplenomegaly.
- Atypical mononuclear cells and PCR confirmation of EBV remain the most reliable diagnostic indicators.

Early recognition and differential diagnosis — particularly distinguishing IM from common tonsillitis — are essential for preventing complications and reducing unnecessary antibiotic use.

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## **ГЕНОТИПЫ ВИРУСА ГЕПАТИТА В И РИСК РАЗВИТИЯ ГЕПАТОЦЕЛЛЮЛЯРНОЙ КАРЦИНОМЫ**

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**Аннотация.** Гепатит В – вирусное инфекционное заболевание, поражающее печень и протекающее в острой или хронической форме. По оценкам ВОЗ, в 2022 г. в мире насчитывалось 254 миллиона человек с хроническим гепатитом В; при этом ежегодно происходит около 1,2 млн новых случаев инфицирования. Гепатоцеллюлярная карцинома – наиболее распространённая первичная злокачественная опухоль печени. Результат малигнизации гепатоцитов. По расчетным данным, в 2022 г. от гепатита В умерли 1,1 миллиона человек, главным образом вследствие цирроза печени и гепатоцеллюлярной карциномы (первичного рака печени).

**Ключевые слова:** малигнизация, гепатоцеллюлярная карцинома, однофакторный анализ, хронический гепатит В, случай контроль, HBsAg.

## **HEPATITIS B VIRUS GENOTYPES AND THE RISK OF DEVELOPING HEPATOCELLULAR CARCINOMA**

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**Abstract.** Hepatitis B is a viral infectious disease that affects the liver and can present in acute or severe forms. According to the WHO, in 2022, there were 254 million people worldwide with chronic hepatitis B, with approximately 1.2 million new cases occurring annually. Hepatocellular carcinoma is the most common primary malignant liver tumor and results from the malignancy of hepatocytes. In 2022, an estimated 1.1 million people died from hepatitis, primarily due to cirrhosis and hepatocellular carcinoma (primary liver cancer).

**Keywords:** malignancy, hepatocellular carcinoma, univariate analysis, chronic hepatitis B, case-control, HBsAg.

## **GEPATIT B VIRUSINING GENOTIPLARI VA GEPATOTSELLULYAR KARSINOMA RIVOJLANISH XAVFI**

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