CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF INFLUENZA AND ACUTE RESPIRATORY VIRAL INFECTIONS AND THEIR PREVENTIVE STRATEGIES

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Abstract Influenza and acute respiratory viral infections (ARVI) remain among the most prevalent infectious diseases worldwide and represent a significant burden for public health systems. This scientific article summarizes modern evidence regarding the clinical manifestations, epidemiological patterns, transmission mechanisms, risk groups, complications, and preventive strategies of influenza and ARVI. Special attention is given to vaccination, non-pharmaceutical preventive measures, and public health surveillance as key tools for reducing morbidity and mortality. The findings highlight the importance of integrated prevention and early diagnosis in controlling respiratory viral infections.
Keywords: Influenza, ARVI, epidemiology, clinical features, prevention, vaccination, respiratory viruses

Introduction

Acute respiratory viral infections include a wide spectrum of viral diseases affecting the upper and lower respiratory tract, such as influenza viruses, respiratory syncytial virus, rhinoviruses, adenoviruses, parainfluenza viruses, and coronaviruses. Among these, influenza occupies a central position due to its high transmissibility, epidemic potential, and risk of severe systemic complications.[1,2,3,4]

Seasonal influenza epidemics occur annually, while pandemics arise when novel antigenic variants emerge and population immunity is low. Despite advances in antiviral therapy and vaccination programs, influenza and ARVI continue to cause substantial morbidity, healthcare utilization, and socioeconomic losses. Therefore, comprehensive clinical and epidemiological analysis is essential for improving prevention and control strategies.[5,6,7,8]

Materials and Methods

This work represents a narrative scientific review based on analysis of international clinical guidelines, epidemiological surveillance data, and peer-reviewed publications related to influenza and ARVI.[9,10,11,12] Sources include reports and recommendations from global health organizations, infectious disease control centers, and contemporary biomedical literature.[13,14,15,16]

Clinical Characteristics

General Manifestations of ARVI

Most acute respiratory viral infections share common clinical symptoms caused by inflammation of the respiratory mucosa and systemic immune response:

Fever of mild to moderate intensity

Nasal congestion and rhinorrhea

Sore throat and cough

Headache and muscle pain

Weakness, fatigue, and reduced appetite

Disease severity varies depending on viral type, host immunity, age, and comorbid conditions.[17,18,19,20]

Specific Clinical Features of Influenza

Influenza is characterized by a more abrupt onset and pronounced systemic toxicity compared with other ARVI:

Sudden high fever (38–40°C)

Chills, severe headache, and myalgia

Dry cough and retrosternal discomfort

Marked weakness persisting for several days[21,22,23]

Complications

Potential complications include:

Primary viral or secondary bacterial pneumonia

Sinusitis and otitis media

Exacerbation of chronic cardiovascular or pulmonary diseases

Acute respiratory distress syndrome in severe cases

High-risk populations include young children, older adults, pregnant women, and individuals with chronic or immunocompromising conditions.[24,25,26]

Epidemiological Characteristics

Source of Infection and Transmission Routes

The primary source of infection is an infected individual during symptomatic or asymptomatic viral shedding. Transmission occurs through:

Respiratory droplets generated by coughing or sneezing

Aerosol spread in poorly ventilated environments

Contact with contaminated hands or surfaces followed by mucosal exposure[27,28]

Seasonality

Influenza and many ARVI demonstrate seasonal increases, particularly during colder months in temperate climates. Seasonal dynamics are influenced by viral evolution, environmental factors, and population immunity.[29,30,31]

Global Burden

Influenza epidemics lead to millions of severe infections and significant mortality annually. ARVI collectively remain one of the most common causes of outpatient visits, school absenteeism, and temporary disability worldwide.[32,33,34]

Preventive Strategies

Vaccination

Annual influenza vaccination is the most effective method for preventing severe disease and complications. Key principles include:

Regular updating of vaccine strains according to circulating variants

Prioritization of high-risk groups

Increasing vaccination coverage to reduce community transmission [35]

Non-Pharmaceutical Prevention

Evidence-based preventive measures include:

Regular hand hygiene

Respiratory etiquette

Use of medical masks during outbreaks

Adequate indoor ventilation

Temporary isolation of symptomatic individuals

Antiviral Prophylaxis and Early Therapy

Early administration of antiviral agents in risk groups or outbreak settings can reduce disease severity, shorten illness duration, and lower complication risk.

Public Health Measures

Effective prevention requires coordinated public health actions:

Continuous epidemiological surveillance

Laboratory confirmation and viral strain monitoring

Community health education

Rapid response to epidemic spread

Discussion

Influenza differs from other ARVI by its rapid spread, systemic toxicity, and higher probability of complications. However, overlapping symptoms complicate early clinical differentiation without laboratory testing. Integrated prevention combining vaccination, hygiene measures, surveillance, and early treatment remains the most reliable strategy for reducing disease burden.

Strengthening healthcare infrastructure and expanding global cooperation are critical for long-term control of respiratory viral infections.

Conclusion

Influenza and acute respiratory viral infections continue to represent major global health challenges. Their widespread distribution, clinical similarity, and potential for severe complications necessitate comprehensive epidemiological monitoring and evidence-based preventive strategies. Annual vaccination, adherence to hygiene practices, timely diagnosis, and coordinated public health interventions are essential for reducing morbidity and mortality.

REFERENCES (SAMPLE):

1.World Health Organization. Seasonal Influenza: Epidemiology and Prevention.
2.Centers for Disease Control and Prevention. Clinical Guidance for Influenza.
3.Iuliano AD et al. Global Seasonal Influenza Mortality Estimates.
4.Paules C., Subbarao K. Influenza. The Lancet.

5.Makhamatov, U., Malikov, N., Po'latov, S., Yusupov, M., Ibragimov, U., Kenjayeva, X., & Umarov, S. (2026). ORGANIZING HEALTHY AND SAFE NUTRITION IN NON-COMMUNICABLE DISEASES. *Shokh Articles Library*, *1*(1).

6.SOG'LOM TURMUSH TARZINI TASHKIL ETISHNI DOLZARB MUAMMOLARI VA ULARNING YECHIMLARI. M .Ashurova, U Maxamatov, X Xaitov, S Yakubov, U Ibragimov. SCIENTIFIC ASPECTS AND TRENDS IN THE FIELD OF SCIENTIFIC RESEARCH 3 (33), 57-61

7. Flatulence in Children and Adolescents and its Prevention. U Shoirjonovich, KM Abdulkhamidovna. European Journal of Innovation in Nonformal Education 2 (1), 83-85

8. Its Importance for The Health of the Child and Mother. HA Akhunjonova, US Makhamatov, KM Saydullayeva, KO Khojimatov, ...Journal of clinical and preventive medicine 2, 61-64

9. HISTOSTRUCTURE OF THE GASTRIC MUCOUS MEMBRANE OF RATS WITH A SINGLE PROTEIN DIET. S Salomov, XM Aliyev, PP Rakhmanov, MD Ashurova, US Makhamatov. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE 2 (4), 14-16

10. Platelet deficiency disease among children and adolescents and measures to prevent it. KMA Makhamatov U.Sh. Eurasian Medical Research Periodical, 37-39

11. Food Poisoning and Its Prevention and Disposal Methods. XU Baxodirovna, MU Shoirjonovich. Мировая наука, 85-87

12. Negative Consequences of Poor and Irregular Diet and Recommendations for Healthy Diet. MD Ashurova, US Maxamatov, UA Teshaboyev, KM Saydullayeva
Ethiopian International Journal of Multidisciplinary Research 10 (11), 509-512

13. Integral Helmintoses in Children and Their Etiological Factors. U Maxamatov, M Xabibullayeva. IQRO JURNALI 1 (2), 233-236

14. CLINIC, DIAGNOSIS OF BOTULISM IN CHILDREN AND ADOLESCENTS OF SCHOOL AGE MUS COURSE. World Bulletin of Public Health 18, 50-52

15. Nutrition of Young Mothers and Recommendations. U Maxamatov, A Nematullayev, D Raimjonov, J Ikromov. Eurasian Journal of Medical and Natural Sciences 2 (6), 160-162

16. Negative Consequences of More Eating and Recommendations on Eating
U Maxamatov, D Raimjonov, J Ikromov, A Nematullayev
Евразийский журнал медицинских и естественных наук 2 (6), 156-159

17. THE EFFECTIVENESS OF URGENT MEDICAL INSTRUCTIONS IN EMERGENCY STATIONS. MU Shoirjonovich, XU Baxodirovna
Мировая наука, 37-40

18. Determining the health of children and adolescents. M.D. Ashurova, U.Sh. Makhamatov, K.M. Saydullaeva, A.L Valiyev, F.I Isroilov. BIO Web of Conferences 65, 05029

19. THE PLACE AND ROLE OF HEALTHY AND HIGH-QUALITY NUTRITION IN STUDENTS'MASTERY OF EDUCATIONAL ACTIVITIES
MD Ashurova. Ethiopian International Journal of Multidisciplinary Research 10 (11), 506-508

20. Anemia Disease and Rational Nutrition in it. U Makhamatov IQRO 2 (2), 280-283
21. Gigenic Bases of Optimization of Children and Comments Nursed in General Schools. U Maxamatov. Web of Semantic: Universal Journal on Innovative Education 2 (3), 56-65
22. Treatment of Triggeral Helmintosis in Children and Adolescents Using Folk Medicine. U.Sh. Maxamatov. Univer Publishing
23. Анализ пациентов с инфекцией COVID-19, роль микроэлемента цинка в организме человека и его роль в распространении и профилактике заболевания. УА Тешабоев, ХК Рузматова, УШ Махаматов, КМ Сайдуллаева
Экономика и социум, 374-381
24. Vitamins and Human health. UB Xatamova, US Maxamatov. Мировая наука, 83-85
25. OPTIMAL NUTRITION PROGRAM FOR CHILDREN: DEVELOPMENT AND IMPLEMENTATION. M Umidjon Modern World Education: New Age Problems–New solutions 1 (3), 70-72
26. ОЖИРЕНИЕ И ЕГО ПОСЛЕДСТВИЯ. У Махаматов Научный Импульс 3 (26), 69-73
27. EKSTRAGENITAL PATOLOGIYALAR, HOMILADORLIKNING O‘ZARO BIR BIRIGA TA'SIRI VA BU HOLATDA OVQATLANISH TARTIBI
U Maxamatov, D Abselyamov, X Kenjayeva, S Po‘latov. MASTERS 3 (3), 5-10
28. CARDIOVASCULAR DISEASES AND HYGIENIC PRINCIPLES OF HEALTHY NUTRITION. F Mamadaliyev, D Abselyamov, S Pulatov, K Kenjayeva, U Maxamatov. Journal of Multidisciplinary Sciences and Innovations 1 (2), 765-768
29. EMERGENCY SITUATIONS RESPONSIBILITIES AND PREVENTION MEASURES. MU Shoirjonovich, XU Baxodirovna. Мировая наука, 33-36
30. РАЗВИТИЕ ДИАБЕТА У БОЛЬНЫХ ИНФЕКЦИЕЙ COVID-19//Евразийский журнал медицинских и естественных наук.–2022
УШ Махаматов. Т 2 (5), 13-18
31. СТАНОВЛЕНИЕ МИКРОБИОЦЕНОЗА У НЕДОНОШЕННЫХ И НОРМАЛЬНОРОЖДЁННЫХ НОВОРОЖДЕННЫХ ДЕТЕЙ
РМ Шерматов, УШ Махаматов. Актуальные научные исследования в современном мире, 76-79
32. METABOLISM OF BASIC SUBSTANCES AND THEIR SIGNIFICANCE IN THE BODY. U Maxamatov, D Abselyamov. MODELS AND METHODS FOR INCREASING THE EFFICIENCY OF INNOVATIVE RESEARCH 4
33. Makhamatov U., Muslimakhon R. THE ROLE OF UNHEALTHY DIET IN THE PATHOGENESIS OF NON-COMMUNICABLE DISEASES //AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE. – 2025. – Т. 3. – №. 10. – С. 63-72.
34. Makhamatov U., Muslimakhon R. NUTRITION OPTIMIZATION IN OSTEOPOROSIS FOLLOWING COVID-19 //AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE. – 2025. – Т. 3. – №. 10. – С. 52-62.
35. Maxamatov U., Muslimaxon R. SOG'LOM TURMUSH TARZI SALOMATLIK OMILI //AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE. – 2025. – Т. 3. – №. 10. – С. 73-82.