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COMPARATIVE DIAGNOSIS OF INFLUENZA AND COVID-19

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Abstract: This article examines the epidemiological characteristics and clinical course of influenza and COVID-19 infections. Similarities and differences between the two viral diseases are analyzed, and criteria important for differential diagnosis are provided. The study results can be applied in clinical practice to establish accurate diagnoses and determine effective treatment measures.

Keywords: Influenza, covid-19, coronavirus, epidemiology, clinical, pcr, diagnosis, pneumonia.

Introduction: In the last decade, viral infections transmitted through the respiratory tract have become one of the urgent health problems for humanity. Among them, influenza and COVID-19 stand out due to their wide spread, severe course, and level of contagiousness. While influenza recurs seasonally every year, COVID-19 was first identified in late 2019 in China and rapidly reached a pandemic level worldwide. Since both infections spread through the respiratory tract and share similar symptoms, distinguishing between them is crucial in medical practice. Therefore, a thorough comparative study of the clinical, epidemiological, and laboratory features of influenza and COVID-19 is necessary.

The influenza virus (Influenza A and B) is characterized by seasonal outbreaks, primarily active in the autumn-winter period. It is highly variable, with new strains emerging due to antigenic drift or shift. This necessitates updating the vaccine composition annually. The disease tends to be more severe in children, the elderly, and individuals with chronic illnesses. COVID-19 (SARS-CoV-2), on the other hand, has affected the global population as a pandemic. The virus spreads via airborne droplets and aerosols, and in some cases through household contact (via surfaces). The incubation period averages 2–14 days. COVID-19 has a significantly higher contagion rate than influenza and often presents asymptomatically. Thus, influenza is primarily characterized by seasonal epidemics, while COVID-19 spreads as a wave-like pandemic.

Clinical Course

Indicator	Influenza	COVID-19
Onset	Acute, temperature rises quickly	Gradual, worsens over 1–3 days
Fever	38–40°C, lasts 4–5 days	37.5–39°C, sometimes prolonged

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Headache and muscle pain	Very severe	Moderate
Cough	Initially dry, then productive	Persistent dry cough
Nasal congestion & sore throat	Clearly expressed	Mild or absent
Loss of smell and taste	Rare	Characteristic for COVID-19
Degree of intoxication	High	Moderate or mild
Complications	Bronchitis, myocarditis, bacterial pneumonia	COVID-pneumonia, thrombosis, multiple organ failure

Influenza is characterized by rapid onset and high fever, while COVID-19 has a long incubation period and causes viral damage in the lungs. COVID-pneumonia is often bilateral with a "ground-glass opacity" sign observed in CT scans.

Research Methodology: Data from 42 patients diagnosed with respiratory infections between 2023 and 2024 were analyzed. The following methods were used for diagnosis: PCR testing to detect viral RNA;Blood tests (complete and biochemical);Computed tomography and X-ray examinations; Analysis of clinical data and anamnesis. The study results clearly demonstrated the clinical and epidemiological differences between influenza and COVID-19. Influenza started rapidly and involved severe intoxication, whereas COVID-19 was characterized by a long incubation period, anosmia, and deep viral pneumonia.

Epidemiological analysis showed that COVID-19's contagion rate is significantly higher than that of influenza, explained by the virus's ability to remain active over long distances via airborne aerosols. PCR testing is the primary diagnostic method for differentiating between the two viruses. While a provisional diagnosis can be made based on clinical signs, laboratory and instrumental confirmation is indispensable.

Conclusion: Influenza and COVID-19 are viral infections transmitted via the respiratory tract, clinically similar but differing in origin, transmission method, and pathogenesis. Both diseases pose serious risks to public health and require a high level of preparedness from the healthcare system. Influenza occurs seasonally every year, with annual vaccine updates due to antigenic changes. COVID-19 has spread worldwide as a pandemic, with a much higher contagion rate than influenza. Clinically, influenza is characterized by rapid onset, high fever, and severe intoxication, whereas COVID-19 has a slower progression, loss of smell and taste, and a "ground-glass" pattern in the lungs. These features are crucial for differential diagnosis. PCR testing remains the main criterion for diagnosis, being the most reliable method to detect viral RNA. Additionally, comparisons of CT scans, blood tests, and clinical data strengthen the diagnosis. From a preventive standpoint, vaccination against both infections, adherence to personal hygiene, precautionary measures in public places, and a healthy lifestyle are vital. In summary, the comparative analysis of influenza and COVID-19 serves as a guideline for clinicians in decision-making. Correct differentiation between these two infections helps prevent severe complications, improve treatment effectiveness, and protect public health.

Moreover, this analysis holds significant scientific and practical value for strengthening preparedness against future viral epidemics.

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