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RESEARCH ARTICLE

TRENDS AND COMPARATIVE ANALYSIS OF RESPIRATORY INFECTIONS IN ALBANIA: FROM JANUARY 2023 TO FEBRUARY 2025

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ABSTRACT

Background: Respiratory infections worldwide are a continuing public health challenge, particularly in post-pandemic periods. Understanding ongoing viral dynamics is essential for designing future prevention strategies. Objective: To evaluate and compare the incidence, demographic distribution, and seasonal patterns of respiratory infections in Albania from January 2023 through February 2025. Methods: An observational study, analysing confirmed laboratory data from the private laboratory Intermedica. Data were stratified by pathogen type, age, gender, and period. Results: In numbers, SARS CoV-2 was the most identified virus in our group of study from Jan. 2023 to Jan 2024 (19.4%), followed by Influenza A and B, with 7% and 3%, respectively; with age group dominated by adults. In contrast, after Jan 2024 to Feb 2025, there was observed an increase of Influenza A and B to 20% and 8%. Additionally, hMPV, Adenovirus and RSV were identified, while confirmed positive SARS CoV-2 numbers were decreased to 3%. Conclusions: Natural immunization, vaccination and global health policies decreased numbers of positive cases for COVID19 which was observed in this two-year study.

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INTRODUCTION

Albania, like many countries, has experienced seasonal and pandemic respiratory pathogens. Respiratory infections are the most widespread cases of infections. The disease is mainly limited to the upper respiratory tract, but a small percentage can also progress to the lower respiratory tract [(3,4,5)]. Children and the elderly are the most risk ages. A group of viruses that can cause respiratory tract infections are families ortho and paramyxoviridae, picornoviridae, coronavirus and adenoviruses [(1,2,6)]. Changing of temperatures and the approach of winter changed the epidemiological situation in the country during 2024 until February 2025.**A**ccording to public health data (ishp.gov.al), up to 10.000 cases of respiratory infections weekly were reported in our country. The curve begins to rise in October to reach its peak at the end of January and the beginning of February. The year-round circulation of COVID-19 and the similarity of its symptoms to the flu, where identifying the newest subvariant that has recently spread [(2,3)]. In the early disease stage, COVID-19 and influenza cannot be distinguished based on clinical symptoms. In the same way, infections with influenza viruses A and B cannot be clinically delimited [(6)]. It may have happened that we have all been affected by Metapneumovirus at least once. According to the Albanian Public Health Institute, this virus has been circulating for more than 25 years in Albania along with influenza and other respiratory viruses. Human Metapneumovirus is transmitted through droplets, just like influenza and Coronavirus. The symptoms of the disease also start the same, but metapneumovirus mainly focuses on the bronchi, causing bronchiolitis to pneumonia [(7)].

MATERIALS AND METHODS

Sample collection: 1550 samples have been collected during January 2023-January 2024 and 1690 samples during January 2024-March 2025 into four different areas around Albanian state. For each sample we completed a questionnaire about their symptoms and clinical anamnesis prescribed from medical Doctor of Healthcare center. Every patient was informed about the study and its aim. After they accepted to using their data, we continued with sampling. Laboratory procedures: In the first stage, all patient swab samples were tested using SARS-CoV-2/Rhv/PIV & Influenza A/B & RSV/ADV/ hMPV Antigen Combo Test Kit (Colloidal Gold Chromatographic Immunoassay) as described on Instructions of Use. Then, only positive samples were confirmed via array molecular method: PneuVirMicroArray (EUROArrayPneuVir, EUROIMMUN, Germany). In this procedure, automated

Table 1. Summarised comparison between SARS CoV-2, Influenza A and Influenza B virus infection (Cit. EUROIMMUN, Instructions of Use)

	SARS-CoV-2	Seasonal influenza viruses
Transmission through	Droplets, also aerosols and smear infection.	
Highest infectiousness	Usually shortly before onset of symptoms	After onset of symptoms
Incubation period	2 – 14 days	1 – 4 days
Risk factors for a severe course	Risk increases with increasing age Adiposis, high blood pressure, chronic diseases	Younger than two years and older than 65 years of age Immunosuppression, pregnancy, adiposis, chronic disease
Most frequent disease symptoms	Fever, chills, headache, muscle pain, dry cough, shortness of breath, fatigue, olfactory loss.	Fever, chills, headache, muscle pain, cough, sputum, stuffed nose, sore throat, fatigue.
Peak of the disease	2nd or 3rd week	Within 3 to 7 days

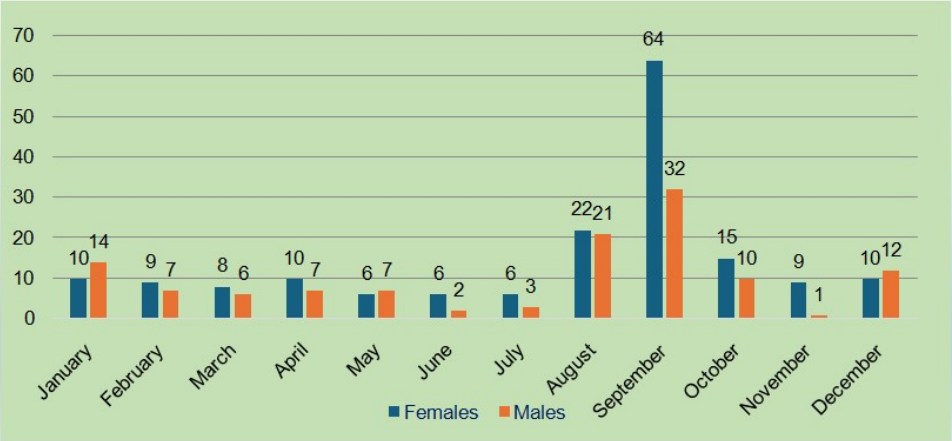

Figure 1. Number of COVID19 positive cases during 2023 separated by gender

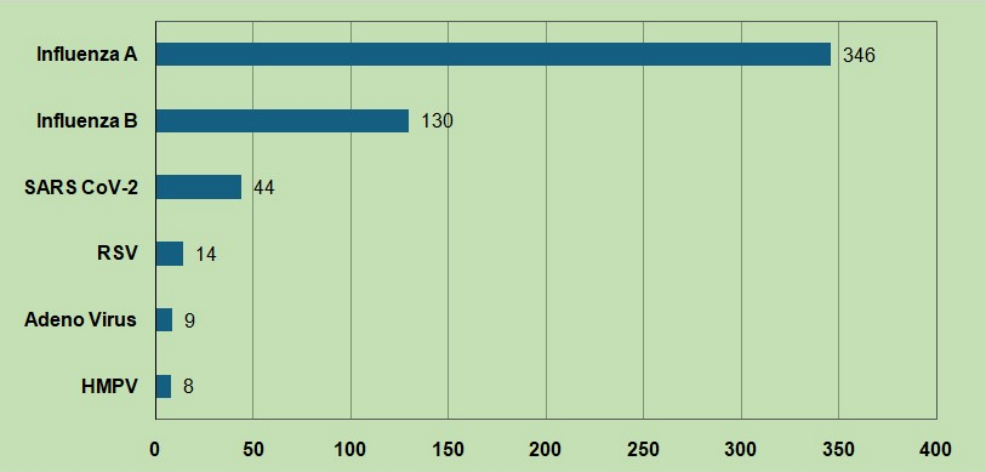

Figure 2. Total number of individs tested during Jan 2024 – Feb 2025 with confirmed positive cases

purification of genetic material was yield which was used for array method. Each array contained 17 spots to detect different types of viruses. After extraction, the PCR procedure was performed. Then the PCR product was hybridised into biochips for incubation. After special washes, the slide is dried, scanned and evaluated.

RESULTS AND DISCUSSION

2023 began with a significant wave of cases of respiratory tract infections, including a combination of viruses such as Influenza A and B, COVID-19, and respiratory syncytial virus (RSV). Out of 1550 samples, 292 turned out to be positive cases with COVID 19, which were then grouped based on age and gender. The division by gender resulted in 117 men and 175 women positive with COVID 19, while by age in an irregular distribution of cases. September of 2023 marks the highest number of positive SARS-CoV-2 tests and we have a predominance of the female sex (Fig.1). The lower number of COVID-19 cases may suggest a reduced impact compared to earlier pandemic waves, possibly due to vaccination and immunity buildup in the population. The age distribution of the tested population was broad, the largest number are between the ages of 51-60, followed by those aged 61-70. From 100 positive cases with Influenza A, the division by gender resulted in 43 men and 57 women positive with Influenza A. During June, no case of Influenza A was identified, while in July and in August, the number of cases were low. The largest number of cases appears in January and is dominated by the female sex. Between January 2024 and February 2025, a total of 1,690 patients were tested for viral respiratory infections. The most

frequently detected virus was Influenza A (346), followed by Influenza B (130), COVID-19 (44), RSV (14), and hMPV (8), Adenovirus (9). If during 2023 influenza was present throughout the year, from January 2024, cases with positive influenza A were only identified for 3 months, in December, January where the number was highest, and during February. The highest testing rates were observed in children aged 0–10 years, followed by aged 11–20. The high testing frequency among children highlights their vulnerability and potential role as transmission vectors. In the case of Influenza B, during 2023, there were 39 positive cases. The division by gender resulted in 22 men and 17 women. A larger number of people affected by this virus appears from January to April. Then a decrease is noticed and during the three months of summer (with the increase of temperatures) no cases of Influenza B have been identified. As in the case of influenza A, positive cases with Influenza B were identified from December 2024 to February 2025, and the most affected group were children aged 0-10. During this time, there were also confirmed cases of hMPV, Adenovirus, and RSV. These predominantly affected the youngest age group.

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