

Clinical and Epidemiological Insights in Severe Influenza patients admitted to emergency department with respiratory symptoms in the fourth year of SARS-CoV-2 pandemic

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Abstract:

- ❑ Diminishing COVID-19 cases have brought a rise through influenza cases across the globe.
- ❑ Newer vaccines which confer immunity to both COVID-19 and influenza are being developed.
- ❑ It is vital to study the epidemiological and clinical data of patients admitted due to influenza, to improve prevention and treatment strategies.
- ❑ In this study we have thereby collected epidemiological and clinical data from patients admitted in our hospital during the 2023-2024 influenza season. This data include comorbidities, influenza type, radiological data, type of oxygen support and mortality.

Introduction:

Since the beginning of the COVID-19 pandemic there has been a substantial reduction of respiratory infections due to other viruses. In the 2023-2024 season although, more influenza cases are being reported.

According to the RespivirNet, among the 52.246 respiratory specimens sent to their central laboratory, 7784 were positive for Influenza. 7242 cases were due to Influenza A (93%), most frequently subtype H1N1, and only 542 type B (7%).

Most cases were reported during the last week of 2023 and first week of 2024. In our Hospital, which is a tertiary care hospital, patients with pneumonia or respiratory failure are routinely admitted both in intensive care units and standard care units. Understanding epidemiological and clinical data from this patients can help improve treatment, make faster diagnosis and plan better prevention strategies.

Materials and Methods

As recommended by local and national authorities, all patients presenting in the emergency department with respiratory symptoms such as fever, cough, dyspnea or radiological findings of pneumonia, are screened for SARS-CoV-2 and influenza, by antigenic or molecular probes.

All positive cases are then notified to the Public Health Department at the beginning and periodically, until clinical cure or death.

Data was collected retrospectively through Public Health Department Sources and Infectious Diseases Consultation Program.

Sex, age, comorbidities, symptoms, the presence of pulmonary or other complications, type of influenza virus, oxygen support, clinical course and management were all reported.

The data were collected from November 2023 to February 2024

Results 1:

There have been 10 notified cases of influenza in our Hospital, 60% men and 40% women.

Median age was 57 years, slightly higher in males versus females (59 vs 53).

Commonly reported symptoms were dyspnea in almost (90%), fever (70%), myalgia (50%).

All received oseltamivir treatment, which was started well beyond the 48 hours after symptoms onset.

All cases but one were due to influenza A virus, diagnosis was made through multiplex real-time PCR assays.

Results 2:

The mortality rate was 50%.

8 patients were treated in intensive care units (80%), 4 needed orotracheal intubation, 3 were managed through non invasive ventilation and one through non-rebreathing oxygen mask. Two patients were put on low flow nasal cannulas

Three patients in intensive care units developed secondary bacterial infections (37%), in two cases due to Pseudomonas aeruginosa DTR sepsis, both resulting in death.

The most frequent comorbidity was pulmonary disease (COPD and pulmonary fibrosis).

In multivariate analysis, a moderate positive correlation was observed between ARDS at the time of diagnosis and clinical outcome defined as death ($r=0.65$, $p < 0.05$).

AGE	GENDER	VIRUS	WARD	RESPIRATORY FAILURE	OXYGEN	OUTCOME
38	M	FLU A	ICU	YES	ET	Death
66	M	FLU A	ICU	YES	NIV	Recovery
50	M	FLU A	ICU	YES	ET	Death
38	F	FLU A	ICU	YES	ET	Recovery
77	M	FLU A	ICU	YES	ET	Death
76	F	FLU A	ICU	YES	CPAP	Death
48	F	FLU A	ICU	YES	CPAP	Death
53	F	FLU A	CARD	NO	NC	Recovery
46	M	FLU B	INF DIS	NO	RA	Recovery
77	M	FLU A	GEN MED	YES	NRB	Recovery

Conclusions:

Influenza infections are becoming more frequent. Morbidity and mortality remains high, even in young patients, as well as hospital burden.

While people with SARS-CoV-2 infection and significant comorbidities receive almost immediately antiviral prophylaxis, cases of influenza remain underdiagnosed and no antiviral treatment is given early or is given when disease has worsened.