CLINICAL AND EPIDEMIOLOGICAL FEATURES OF CHILDREN WITH SEVERE INFLUENZA ADMITTED TO PEDIATRIC INTENSIVE CARE UNIT IN GREECE DURING 2009-2018

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BACKGROUND-AIM

Influenza is a viral disease that is often associated with respiratory failure and other severe complications. The aim of this study was to outline the incidence, clinical characteristics, and outcomes in critically ill children with influenza admitted to a pediatric intensive care unit (PICU) during nine years.

METHODS

Retrospective study conducted in the main PICU in Greece. All patients with confirmed influenza infection, detected by reverse-transcriptase polymerase chain reaction assay, between September 2009 and April 2018 were included.

Characteristics		patients (n=28)
Sex, male		15 (53,6)
Age, years		5 (0,5 -12)
Underlying medical condition		14 (50)
Body Mass Index		
	Normal	22 (78,6)
	Overweight	3 (10,7)
	Obese	3 (10,7)
Cause of admission		
	Respiratory distress or failure	12 (43)
	Bacterial superinfection	11 (39,3)
	Other	5(17,8)
Interval between symptoms onset and admission to hospital, days		3 (2-5)
Interval between symptoms onset and admission to PICU, days		4 (2-10)
Infection origin		
	Community	24 (85,7)
	Nosocomial	4 (14,3)
Type of influenza virus		
	H1N1	18 (64,3)
	H3N2	1 (3,6)
	B	9 (32,1)
Mechanical ventilation		20 (71,4)
Days of mechanical ventilation		7 (1-13)
Shock		9 (32,1)
Length of PICU stay days		8 (5-28)
Interval between symptoms onset and commencement of antiviral treatment, days		4 (2-7)
Outcome, death		10 (35,7)

RESULTS

- A total of 28 patients with confirmed influenza required critical care.
- The majority of patients (15/28, 53,6%), were admitted in season 2015-2016, in which the predominant influenza virus was AH1N1 (10/15, 66,7%).
- The prevailing strain in season 2017-2018 is Influenza B (4/5) with an exception of one H3N2 case.
- None of the patients had been vaccinated for influenza.
- 14 (50%) children had an underlying chronic illness.
- Cause of admission to PICU was respiratory failure (12/28, 43%), bacterial co-infection (11/28, 39,3%), thrombotic thrombocytopenic purpura (1/28), hemophagocytic syndrome (1/28), capillary leak syndrome (1/28), encephalitis (1/28) και myocarditis/pericarditis (2/28).
- The mortality rate for the period of 2015-2016 was 53% (8 patients) compared to an overall mortality rate of 35,7% (10 patients).
- 2 patients (11,1%) had residual problems after discharge.
- The death rate was significantly higher among children with underlying chronic disease versus previously healthy children (8/14 vs 2/14, p:0.018).

CONCLUSIONS

- Influenza and its complications are a cause of PICU admission.
- It is often related to adverse outcome especially among children with underlying chronic conditions.
- Pandemic subtype A H1N1 was associated with severe disease in season 2015-2016
- The 2017-2018 season was dominated by influenza B virus.