Global Influenza Hospital Surveillance Network

Characteristics of Patients Hospitalized for Severe Acute Respiratory Infections and Predictive Factors for ICU Admission in Tunisia, 2015-2019

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Site presentation

Respiratory infections are a major cause of morbidity and mortality worldwide and syndromic surveillance of severe acute respiratory infections (SARI) is important to assess seriousness of disease as recommended by WHO. The data collected can help to identify the risk of influenza illness in SARI patients with preexisting conditions. Tunisia, has installed a SARI surveillance system since 2014 based on six university hospital departments and

Methods

A n epidemiological study was conducted according to Global Influenza Hospital Surveillance Network (GIHSN) protocol. A nasopharyngeal swab or a pharyngeal swab were obtained from each case. Non-institutionalized patients responding to case definition of influenza like-illness (ILI) and their symptoms appear within 7 days before being hospitalized. Study questionnaires were filled out with the information obtained from admission enrolment lists and hospital registries and, after informed consent, through face to face interviews with the patients, through the review of clinical records and through consultations with the patients' physicians and nurses. For the detection of Influenza virus subtype or lineage, reverse transcription polymerase chain reaction (RT-PCR) was used.

The aim of this analysis was to describe the characteristics of patients among acute admissions with SARI during four influenza seasons between 2015 and 2019 in tow selected SARI sites in Tunisia.

Results

During this period of study, 564 SARI cases were enrolled from tow sites in Tunisia. More than half of the cases are females (58.2%). The mean age was 53.9 years (SD=19.4). The influenza positivity rate was 28.3 % (n= 120) and the rate of influenza vaccine among those patients was very low with only 5.8% among these SARI cases.

The number and the distribution of different strains are described in Figure 1, which shows the predominance of influenza A H1N1pdm 2009 during the seasons 2015-2016 and 2017-2018, and within the age groups between 18-<65years (Figure2), while the other two seasons are characterized by influenza AH3N2. 22.9 % of patients died during these four influenza seasons,

Figure 1 : Virus distribution by type and subtype for SARI cases in Tunisia between 2015-2019

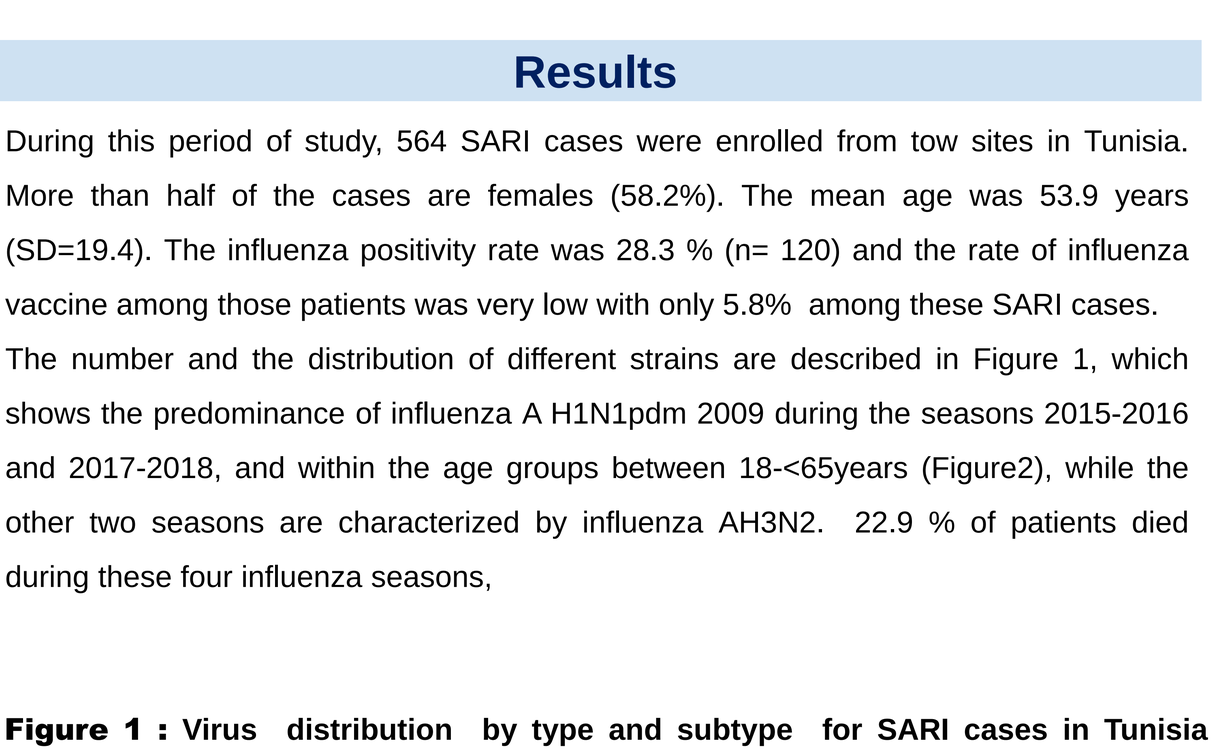


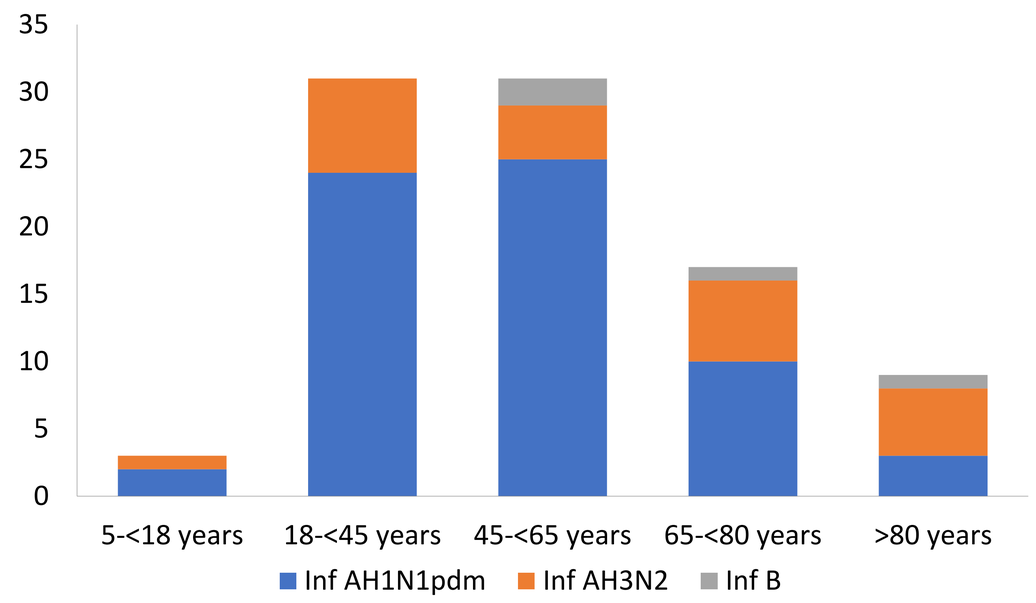
Table 1: Risk factors for ICU addmited cases of SARI cases between 2015-2019

		Numbre (%) of ICU admission	Crude OR (IC95%)	P value	Adjusted OR (IC95%)	P value
Gender	Female	132 (56,2)	1	0.282		
	Male	202 (61,8)	1.26 (0,89-1,77)			
Age	<60years	172 (55.8)	1			
	≥60years	159 (63.3)	1.36 (0.97-1.92)	0.073	0,74(0.49-1.13)	0.17
Flu vaccine	No	309 (59.3)	1			
	Yes	19 (59.4)	1.01 (0.48-2.07)	0.99		
Smoking	No	151 (47.0)	1			
	Yes	184 (76.3)	3,63 (2.51-5.26)	<0.001	2.03 (1.33-3.09)	0.001
Cardiovascular disease	No	234 (59.4)	1			
	Yes	101 (59.4)	1.00 (0.69-1.44)	0,99		
Liver disease	No	330 (59.7)	1			
	Yes	5 (45.5)	0.56 (0.17-1.87)	0,36	0,63(0,21-1,81)	0,41
Neurological disease	No	307 (59.2)	1			
	Yes	28 (62.2)	1.14 (0.61-2.13)	0.68		
Renal disease	No	308 (60.0)	1			
	Yes	25 (51.0)	0.69 (0.38-1.25)	0.22	0.57(0.28-1.17)	0,12
Immunodeficiency	No	328 (60.3)	1			
	Yes	7 (35.0)	0.35(0.14-0.9)	0.024	0.78(0.27-2.07)	0.58
Diabetes	No	268 (58.9)	1			
	Yes	67 (61.5)	1.11(0.72-1.71)	0.62		
Obesity	No	326 (58.7)	1			
	Yes	9 (100.0)				
Asthma	No	299 (57.9)	1			
	Yes	36 (75.0)	2.17(1.11-4.28)	0.021	2.16(1.02-4.75)	0.04
Tuberculosis	No	301 (58.3)	1			
	Yes	34 (70.8)	1.73(0.91-3.31)	0.092	1.00(0.44-2.25)	0,99
Respiratory diseases	No	154 (41.8)	1			
	Yes	181 (92.3)	16.77(0.91-3.31)	<0.001	12.77(7.15-22.82)	<0.001
Influenza Positivity	No	177 (58.2)	1			
	Yes	72 (60.0)	1.07(0.7-1.65)	0.74		

More than half of patients 59.4% (n= 335) were admitted to the intensive care unit, 42% (n=241)of this studied population are smokers and 73.6% (n=415)have chronic comorbidities .

We retained at the final model of logistic regression the variables: Smoking (AOR=2.03; IC95% (1.33-3.09)); Asthma (AOR= 2.16 ; IC95% (1.02-4.75)) and Respiratory diseases (AOR=(12.77 ; IC95% (7.15-22.82))

Figure 2: Virus distribution by age groups for SARI cases in Tunisia between 2015-2019



Key aspects & challenges

These results identify groups at high-risk for severe influenza who should be considered potential targets for influenza vaccination in Tunisia.

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