



Outcomes of adult patients hospitalized for influenza like illness in 2015-16 influenza season in Turkey

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Introduction: Influenza-like illness (ILI) can be an important cause of morbidity and mortality, particularly in the influenza season. The primary objective of this study was to determine the characteristics and outcome of patients among acute admissions with ILI during the 2015-2016 season in selected hospitals in Ankara, Turkey.

Methods: A prospective, epidemiological study was conducted in accordance with the core protocol provided by Global Influenza Hospital Surveillance Network (GIHSN). Hospital admission registries, charts or available records were screened and **all** patients hospitalized in the previous 24-48 hours or overnight in the predefined wards or emergency room were identified. Admission diagnoses were evaluated and resident patients whose indication for admission was any of a predefined set of conditions, described as possibly associated with a recent influenza infection were eligible for further evaluation. A nasopharyngeal swab or a pharyngeal swab were obtained from each patient. For detection of Influenza H1, H3 subtype, Influenza B Yamagata and Victoria lineages real-time RT-PCR method was performed using a Bio-Rad CFX 96 instrument with CDC primers and probes according to the CDC protocol.

Results: Among 753 adult (≥ 18 years old) patients screened, 315 were eligible for swabbing. Patients had a high disease burden (Table) and 93 (58.1%) reported at least one hospitalization within the previous year. The influenza positivity rate was 25.4% (80 patients) (Figure). There was no difference in terms of gender (females, 45.8% vs. 51.8%), mean body mass index (25.58 ± 0.68 vs. 27.03 ± 0.57), mean number of hospitalizations in the last 12 months (1.03 ± 0.12 vs. 1.09 ± 0.09) and influenza positivity (24.2% vs. 26.2%) between those under 65 years of age and those ≥ 65 years of age, respectively. However, patients ≥ 65 years of age had a higher chronic disease burden. There was also a significant difference in terms of mean length of stay among when patients ≥ 65 years of age (15.28 ± 1.62) when compared to those who were under 65 years of age (10.04 ± 1.06) ($p=0.007$). Half of the patients over 65 years of age were admitted to the intensive care unit, while one third required any mode of mechanical ventilation and one fourth died in the hospital in that particular episode (Table). The rate of influenza vaccine was only 15.9% among those patients over 65 years of age in this cohort.

Discussion: This study showed that influenza like illness (ILI) can be a devastating disease condition that requires hospitalization and might result in death among adult patients. In particular, the elderly, infants, and chronic patients are known to be at high risk for severe influenza because they may have accompanying complications such as exacerbation of an underlying disease, development of pneumonia, and another organ dysfunction or they may die (1). The study population was composed of patients with a high chronic disease burden and high utilization of healthcare services. Despite this high chronic disease burden only 16% of the patients were vaccinated. The outcomes were worse and length of hospital stay was longer among adults, particularly over 65 years of age. Interestingly, we could not demonstrate any difference between the influenza positive and influenza negative groups with regard to outcome. It's now well known that not only influenza, but also several other viruses, such as the rhinovirus, cause ILI (2) and result in significantly higher morbidity and mortality, particularly among elderly patients (3). These findings can guide the hospitals, particularly those who have an ageing population of patients with high chronic disease burden, to plan and prepare for the influenza season.

Keywords: influenza like illness, mortality, surveillance

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References:

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2. Cunha BA. Viral influenza-like illnesses: dynamic interrelationships during the 2015e2016 influenza season in hospitalized patients. J Hosp Infect 2017; 95:275-279.
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Table. Characteristics and outcomes of patients

	Number of patients (%)			p
	All patients (n=315)	Under 65 years (n=120)	65 years and older (n=195)	
Chronic diseases				
Cardiovascular disease	215 (68.3)	62 (51.7)	153 (78.5)	$p<0.001$
COPD	99 (31.4)	24 (20)	75 (38.5)	$p<0.001$
Asthma	46 (14.6)	22 (18.3)	24 (12.3)	NS
Immunocompromised	16 (5.1)	11 (9.2)	5 (2.6)	0.01
DM	90 (28.6)	32 (26.7)	58 (29.7)	NS
Malignancy	52 (16.5)	25 (20.8)	27 (13.8)	0.07
Renal diseases	55 (17.5)	14 (11.7)	41 (21)	0.02
Chronic liver disease	3 (1.0)	2 (1.7)	1 (0.5)	NS
Autoimmune/ Rheumatismal disease	24 (7.6)	10 (8.4)	14 (7.2)	NS
Neuromuscular disease	35 (11.1)	9 (7.5)	26 (13.3)	NS
Vaccination status				
Flu vaccine 2015-16	45 (14.3%)	14 (11.7)	31 (15.9)	NS
Outcome				
ICU	125 (39.7%)	32 (26.7)	93 (47.7)	$p<0.001$
Death	59 (18.6%)	9 (7.5)	50 (25.6)	$p<0.001$
Mechanical ventilation	86 (27.3)	19 (15.8)	67 (34.4)	$p<0.001$

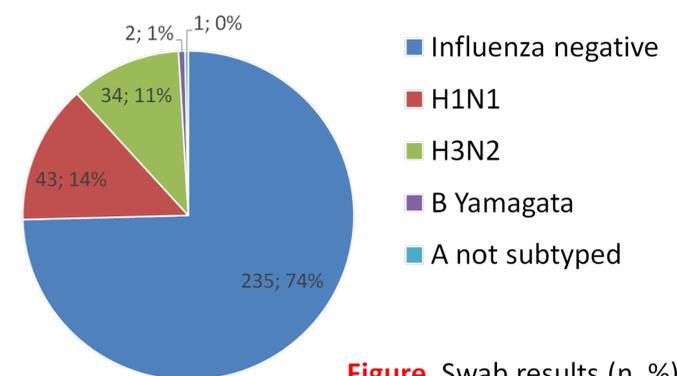


Figure. Swab results (n, %)