

PNEUMONIA IN ICU PATIENTS AT DAMASCUS HOSPITAL (ALMOUJTAHD HOSPITAL)Salam Suleiman¹, Lieth Al Hassan¹, Mowaffak Alhamad¹, Mhd. Nezar Alsharif^{1*} and Nizar Daher^{1,2}^{1,2}Faculty of Medicine, Syrian Private University. Damascus, Syrian Arab Republic.²Dean of Faculty of Medicine, Syrian Private University.***Corresponding Author: Dr. Mhd. Nezar Alsharif**

Faculty of Medicine, Syrian Private University. Damascus, Syrian Arab Republic.

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ABSTRACT

Objective: This research was done to study patients with Hospital acquired pneumonia who were admitted to the ICU in AlMoujtahd Hospital (Damascus Hospital). **Materials and Methods:** This study was a retrospective study of the files of the patients who were admitted to the Intensive Care Unit (ICU) AlMoujtahd Hospital (Damascus Hospital) and had pneumonia. This study included all cases from 1/1/2017 to 31/8/2018. Statistical analysis was done using SPSS 25.0. **Results:** The mean age of participants in our study was 62.5 years old. Most of the patients in our study were females (51.4%). Regarding prognosis of the cases in our study, most of the patients were deceased with mortality rate of 92.9%. Intubation was done in 49 patients (70%). Most of the patients who died were smokers (50.8%). Most of the patients who died were intubated (73.8%), while most of the patients who improved were not intubated (80%). 29.2% of the patients who died had kidney failure, while of the patients who improved, 40% did not have any kidney disease, 40% had glomerulonephritis and 20% had kidney failure. **Conclusion:** This study highlights the need for large-scale epidemiologic research to further understand pneumonia in ICU and its pathology.

KEYWORDS: Pneumonia, ICU, Syrian Population.**INTRODUCTION**

Hospital-acquired pneumonia is one of the most frequent and most severe medical complications in patients hospitalized in intensive care units. It develops mainly in association with invasive airway management and mechanical ventilation. It is an important factor affecting health care economy and often related to bacterial resistance. Understanding the etiology of pathogens and their potential resistance to antimicrobial agents has a major impact on both patients' morbidity and mortality and the economic aspect of their treatment.^[1] Pneumonia is diagnosed by assessing clinical signs and detecting etiologic agents. Clinical signs are assessed especially by finding fresh or progressive infiltrates on chest radiographs, together with at least two other signs of respiratory tract infection. From the epidemiological point of view, pneumonia may be either community-acquired (CAP) or hospital-acquired (HAP). CAP is defined by developing in the community outside health care facilities and, if the patient is hospitalized, clinical manifestations within 48 h of hospital admission. HAP may be characterized as pneumonia developing 48 h or more after admission to a health care facility or within 14 days after discharge. More precise classification according to the time of the onset of clinical signs distinguishes early-onset (from 2 to 4 days after admission) from late-onset (from day 5 after admission)

HAP. The most common pathogens causing CAP are *Streptococcus pneumoniae*, *Chlamydomphila pneumoniae* and *Mycoplasma pneumoniae*.^[2] HAP is mostly caused by endogenous bacterial strains, originating from primary microflora or secondary colonizing bacteria with a higher level of resistance in the early- and late-onset forms, respectively.^[1,3] This knowledge is used to select the proper therapy since the proportion of individual pathogens determines the strategy of initial antibiotic treatment. Adequate antibiotic therapy is an important factor influencing the effectiveness of therapy and, of course, the patient's survival.^[4,5] The prospective study aimed at identifying etiologic agents of pulmonary inflammation in patients with the most severe forms of respiratory insufficiency requiring mechanical ventilation. The objectives were to describe the prevalence of respiratory tract pathogens, to determine their susceptibility to a range of tested antibiotic agents, and to acquire information on the proportion of resistant strains in the population of these pathogens. The impact of adequate antibiotic therapy was assessed, with respect to patient mortality and morbidity rates.

MATERIALS AND METHODS

This study was a retrospective study of the files of the patients who were admitted to the Intensive Care Unit (ICU) AlMoujtahd Hospital (Damascus Hospital) and

had pneumonia. We collected data regarding the age, gender, symptoms, duration of hospitalization and risk factors of the patients. This study included all cases from 1/1/2017 to 31/8/2018. Only the authors to ensure the

privacy collected all the data and all the names and personal information were blinded. Statistical analysis was done using SPSS 25.0.

RESULTS

Table 1: Variables of our study.

		N	%
Gender	Male	34	48.6
	Female	36	51.4
Smoking	No	37	52.9
	Yes	33	47.1
Alcoholic	No	68	97.1
	Yes	2	2.9
Prognosis	Died	65	92.9
	Improved	5	7.1

Table 2: Medical procedures performed on patients in our study.

		N	%
Intubation	No	21	30.0
	Yes	49	70.0
Tracheostomy	No	54	77.1
	Yes	16	22.9
Blood Transfusion	No	62	88.6
	Yes	8	11.4

Table 3: Clinical Presentation of patients in our study.

		N	%
Cough	No	30	42.9
	Yes	40	57.1
Sputum	No	38	54.3
	Yellow	21	30.0
	White	9	12.9
	Bloody	2	2.9
Chest Pain	No	58	82.9
	Yes	12	17.1
Dyspnea	No	11	15.7
	Yes	59	84.3
Fever	No	29	41.4
	Yes	41	58.6
Cyanosis	No	61	87.1
	Yes	9	12.9
Crackles	No	17	24.3
	Fine	27	38.6
	Coarse	26	37.1
Hypertension	No	25	35.7
	Yes	45	64.3
Diabetes	No	42	60.0
	Yes	28	40.0
Cerebrovascular Accident (CVA)	No	55	78.6
	Yes	15	21.4
Kidney Disease	No	48	68.6
	Glomerulonephritis	2	2.9
	Kidney Failure	20	28.6
Asthma	No	64	91.4
	Yes	6	8.6
Chronic Obstructive Pulmonary Disease	No	61	87.1
	Yes	9	12.9
Cardiac Disease	No	48	68.6
	Yes	22	31.4

Table 4: Correlation between Duration of Hospitalization with Intubation and Smoking.

					T test		
		Intubation	N	Mean	Std. Deviation	T test value	p-value
Duration of Hospitalization	No		21	5.4	3.610	-1.998	0.050
	Yes		49	7.9	4.911		
	Smoking		N	Mean	Std. Deviation	T test value	p-value
	No		37	8.5	5.2	2.365	0.021*
	Yes		33	5.8	3.7		

Table 5: Risk factors correlation to prognosis in our study.

					Chi-Square Test		
			Smoking		Chi-Square	p-value	
			No	Yes			
Prognosis	Died	N	32		4.802	0.036*	
		%	49.2%				
	Improved	N	5				
		%	100.0%				
			Intubation				
			No	Yes			
Prognosis	Died	N	17		6.410	0.026*	
		%	26.2%				
	Improved	N	4				
		%	80.0%				
			Blood Transfusion				
			No	Yes			
Prognosis	Died	N	57		0.695	0.535	
		%	87.7%				
	Improved	N	5				
		%	100.0%				
			Cyanosis				
			No	Yes			
Prognosis	Died	N	56		0.794	0.492	
		%	86.2%				
	Improved	N	5				
		%	100.0%				
			Cardiac Disease				
			No	Yes			
Prognosis	Died	N	44		0.326	0.495	
		%	67.7%				
	Improved	N	4				
		%	80.0%				
			Kidney Disease				
			No	Glomerulonephritis	FALIURE		
Prognosis	Died	N	46	0	19	26.78	0.000*
		%	70.8%	0.0%	29.2%		
	Improved	N	2	2	1		
		%	40.0%	40.0%	20.0%		

DISCUSSION

The mean age of participants in our study was 62.5 years old. Most of the patients in our study were females 36 patients (51.4%) compared to males 34 patients (48.6%). 33 patients (47.1%) were smokers, while most 37 patients (52.9%) were non-smokers. 2 patients (2.9%) were alcoholics, whereas 68 patients (97.1%) were not.

Regarding prognosis of the cases in our study, most of the patients were deceased with mortality rate of 92.9%. 7.1% of all cases improved.

Regarding medical procedures performed, intubation was done in 49 patients (70%) compared to 21 patients (30%) with no intubation. Tracheostomy was done in 16 patients (22.9%), while most patients, 54 patients (77.1%), did not have it. Most of the patients did not

need blood transfusion 62 patients (88.6%), whereas 8 patients (11.4%) needed it.

We studied the correlation between prognosis and smoking ($p < 0.05$) and found that most of the patients who died were smokers (50.8%), while all the patients who improved were non-smokers.

We studied the correlation between prognosis and intubation ($p < 0.05$) and found that most of the patients who died were intubated (73.8%), while most of the patients who improved were not intubated (80%).

We studied the correlation between prognosis and blood transfusion and found that 12.3% of the patients who died had blood transfusion, while none of the patients who improved had blood transfusion.

We studied the correlation between prognosis and cyanosis and found that 13.8% of the patients who died had cyanosis, while none of the patients who improved had cyanosis.

We studied the correlation between prognosis and cardiac disease and found that 32.3% of the patients who died had cardiac disease, while most of the patients who improved (80%) did not have any cardiac disease.

We studied the correlation between prognosis and kidney disease ($p < 0.05$) and found that 29.2% of the patients who died had kidney failure, while of the patients who improved, 40% did not have any kidney disease, 40% had glomerulonephritis and 20% had kidney failure.

CONCLUSION

An overview of the currently available literature illustrates the paucity of accurate information of pneumonia in ICU patients especially in Syria, and highlights the need for large-scale epidemiologic research exploring the prevalence and incidence of pneumonia in ICU patients and the risk factors and other accompanying diseases that could increase the duration of hospitalization and mortality rates.

Compliance with Ethical Standards

Funding: This study was not funded by any institution.

Conflict of Interest: The authors of this study have no conflict of interests regarding the publication of this article.

Ethical approval: The names and personal details of the participants were blinded to ensure privacy.

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