Al-Nahrain University
College Of Medicine

Management of the hospitalized patient with pneumonia

By

Hiba abd al_kareem

Stager Student

Supervised by

Dr. Haider Abdul Hamid

MD, FICMS

2019

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

((يَرْفَعِ اللَّهُ الَّذِينَ آمَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ وَاللَّهُ بِمَا تَعْمَلُونَ خَبِيرٌ))

صدق الله العلي العظيم
سورة المجادلة (من الآية *11*)

Content	Page
List of contents	II
List of tables	III
Dedication	IV
Acknowledgment	V
Abstract	VI
Introduction	1
Aim	4
Patients and methods	5
Results	6
Discussion	12
Conclusions & Recommendations	13
References	14

LIST OF TABLES & FIGURES

Title
Tables
Table 1: Socio-demographic characteristics of the sample
Table 2: : Respiratory symptom of patient in study sample
Table 3: : Associated Comorbidities of patient in study sample
Table 4: Pneumonia Assessment score According CURB-65
Figure1: Age distribution among patients of the study .
Figure2 **:** Sex distribution among patients of the study.

DEDICATION

I dedicate this research to my family . A special feeling of gratitude to my lovely parents, to my sister Naba for encouragement and support .

I also dedicate this research to my doctors and friends who have supported me throughout the process

IV

ACKNOWLEDGEMENT

I would like to express my sincere attitude to my supervisorDR.HAIDER-ABDUL-HAMIDfor his great help and support. His guidance and expertise have helped me all the way to finish this research.

A special gratitude I give to my family and friends for their continuous support.

ABSTRACT

Introduction: : Pneumonia is the most common hospital-acquired infection affecting patients in the intensive care unit (ICU). However, current national guidelines for the treatment of hospital-acquired pneumonia (HAP) are several years old and the diagnosis of pneumonia in mechanically ventilated patients (VAP) has been subject to considerable recent attention. The optimal duration of antibiotic therapy for HAP in the critically ill is uncertain (1).

Objectives: To determine the most commonly followed guideline in the treatment of hospitalized patients with pneumonia .

Methods: This is across sectional study of randomly selected 25 patients (15male and 10 female) hospitalized with pneumonia that admitted to Al-Imamein Al-kadhimein Medical City patients interviewing and testing was from (November 2018 to February 2019) . all patients presented with pneumonia in this study .

Results : A significant association was found between pneumonia and increase age group ,pneumonia being more prevalent among patients with old age group than others .

Conclusion: In this study was found that a male predominance , the majority of age groups above 60 years old , the commonest mode of presentation was cough (80%) followed by sputum (72%), and comorbid diabetics mellitus had higher percentage than other comorbidities

Keywords : Pneumonia , Cough, Sputum, CURB-65,

INTRODUCTION

Definition of pneumonia

Pneumonia is the most common hospital-acquired infection affecting patients in the intensive care unit (ICU). However, current national guidelines for the treatment of hospital-acquired pneumonia (HAP) are several years old and the diagnosis of pneumonia in mechanically ventilated patients (VAP) has been subject to considerable recent attention. The optimal duration of antibiotic therapy for HAP in the critically ill is uncertain (1).

Classification of pneumonia

Traditionally, pneumonia has been classified as either community- or hospital acquired. Although only limited data are available, health care-associated pneumonia has been recently proposed as a new category of respiratory infection. "Health care-associated pneumonia" refers to pneumonia in patients who have recently been hospitalized, had hemodialysis, or received intravenous chemotherapy or reside in a nursing home or long-term care facility (2).

Severity of pneumonia

Pneumonia severity assessment systems such as the pneumonia severity index (PSI) and CURB-65 were designed to direct appropriate site of care based on 30-d mortality. Increasingly they are being used to guide empirical antibiotic therapy and also possibly to detect patients who will require admission to the intensive care unit (ICU). We retrospectively reviewed the records of all patients admitted to our institution with confirmed community acquired pneumonia (CAP) for the 12 months from January 2002. 408 episodes were studied with an overall 30-d mortality of 15.4% and ICU admission of 10.5%. PSI classes IV/V were significantly better than CURB-65 score > or = 3 for predicting patients who died within 30 d (94% VS 62%; $p < 0.001$), and those that needed ICU (86% VS 61%; $p = 0.01$). In addition, for the patients identified as 'low risk' by PSI (classes I/II), there was only 1 death and 1 admission to an ICU compared to 8 deaths and 7 ICU admissions with CURB-65 scores of 0-1. Although easier to use, CURB-65 is neither sensitive nor specific for predicting mortality in CAP patients. Neither rule was sufficiently accurate for predicting need for an ICU, even when patients with 'not for resuscitation' orders were excluded (3).

Treatment of pneumonia

Patients affected by pneumonia can be admitted in Intensive Care Units (ICUs) independently by the setting where the infection has been acquired (community, hospital, long-term care facilities); even more frequently pneumonia can develop in patients already hospitalized in ICU especially in those requiring mechanical ventilation for different reasons. Within the severe community acquired pneumonia requiring admission in ICU, the most frequently responsible micro-organisms are mainly represented by Streptococcus pneumonia, but also by Legionella and haemophilus. Pseudomonas aeruginona, anyway, cannot be excluded. The most recent Canadian and American guidelines for treatment of the above mentioned infections suggest the use of a combination therapy with beta-lactams (ceftriaxone, cefotaxime, ampicillin/sulbactam, piperacillin/tazobactam) and a new generation macrolide or respiratory fluoroquinolone. In case of allergy to beta-lactams, the association fluoroquinolone-clindamycin should be preferred. Whenever a Pseudomonas etiology is suspected because of the presence of risk factors such as COPD, cystic fibrosis, bronchiectasis, previous and/or frequent therapies with antibiotics and/or steroids, the same guidelines suggest the use of an anti-pseudomonas beta-lactam (such as piperacillin/tazobactam, carbapenems, cefepime) associated with an anti-pseudomonas fluoroquinolone (high doses ciprofloxacin). An anti-pseudomonas beta-lactam plus an aminoglycoside or aminoglicosyde plus fluoroquinolone can be an alternative. Early onset Hospital Acquired Pneumonia (HAP) and early onset Ventilator Associated Pneumonia (VAP) in patients without risk factors for multi-resistant etiological agents are generally sustained by S. pneumonia , H. influenzae, methicillin-susceptible Staphylocccus aureus e Gram negative enteric rods (4).

Aim of the study

To determine the most commonly followed guideline in the treatment of hospitalized patients with pneumonia.

PATIENTS AND METHODS

This is across sectional study of randomly selected 25 patients (15male and 10 female) hospitalized with pneumonia admitted to Al-imamein Al-Kadhimein Medical City patients interviewing and testing was from (November 2018to February 2019) .

Inclusion criteria

The included patients were all the patients that diagnosed by physician with pa ptients hospitalized with pneumonia .

Exclusion criteria

There was no excluded patient.

Study protocol

Patients with pneumonia admitted to the the medical ward were randomly selected to participate in this study, relevant history, according to a questionnaire specifically designed for this study, was obtained together with information about gender, age, date of admission, , comorbidities like (diabetes mellitus , hypertension , ischemic heart disease , and chronic renal failure) . also the severity of pneumonia were assessed by CURB-65 The investigations of the patient were reviewed including CXR , WBC count with differential ,pulse oximetry , culture of lower respiratory tract sample.

Results

From the total 25 patients that have been admitted the Internal Medicine ward during the mentioned period, we can see according to the socio-demographic characteristics of those patients that 60% are male while 40% are female who 52% of them are older than 60 years old in general, as seen in table (1).

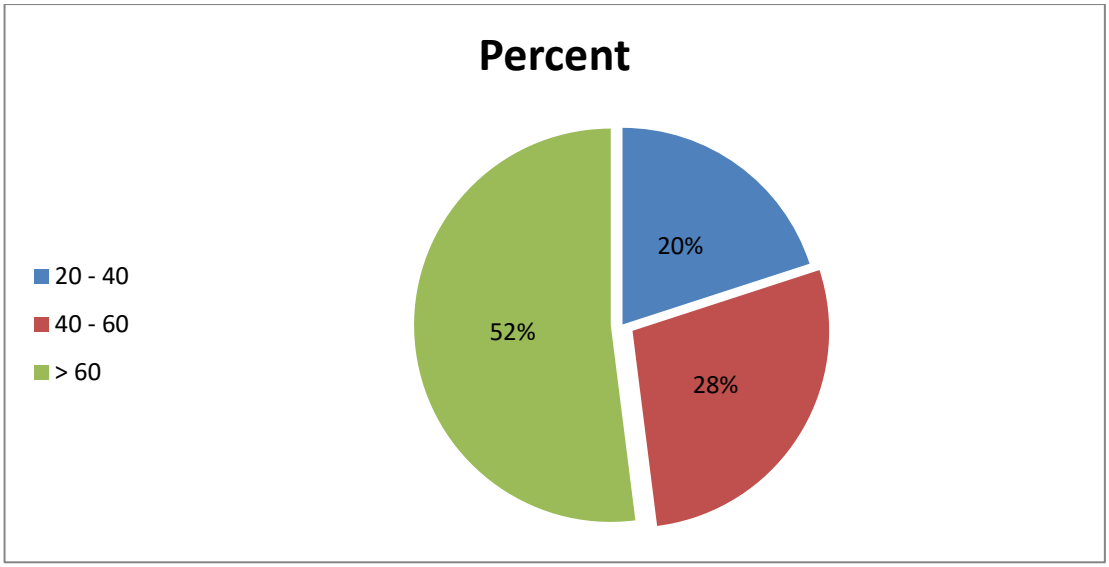
Also, we can see among the patients' respiratory symptoms that 80% of them have cough while 72% developing sputum with it, dyspnea is 60% and pleuritic chest pain is 40% , as seen in table (2).

When we reviewed the patients' comorbidities, we found that 48% have DM, 40% have HTN , 32% have IHD and 24% have CKD, as seen in table(3).

Regarding the CURB-65, we found that 48% were younger than 65 years while 52% were older than that, as seen in table (4).

Table 1: Socio-demographic characteristics of the sample.

Characters		Frequency	Percentage (%)
Age group (in years)	20 - 40 40 - 60 > 60	5 7 13	20% 28% 52%
Sex	Male Female	15 10	60% 40%
Total		25	100%



-

Figure 1: Age distribution among patients of the study .

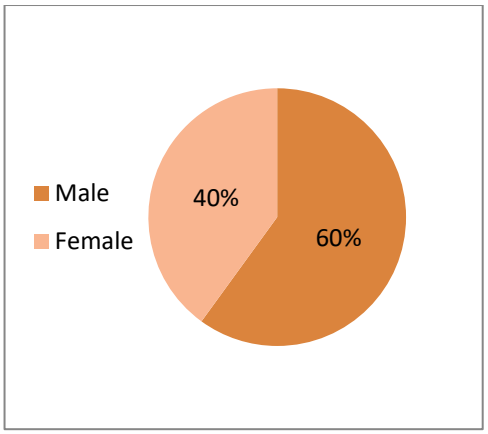


Figure 2: Sex distribution among patients of the study

Table 2: Respiratory symptom of patient in study sample

Respiratory symptom	Frequency	Percent (%)
Cough	20	80%
Sputum	18	72%
Dyspnea	16	64%
Pleuritic chest pain	10	40%

Taple:3 Associated Comorbidities of patient in study sample

Associated Comorbidities	Frequency	Percentage (%)
Diabetes Mellitus	12	48%
Hypertension	10	40%
Ischemic Heart Disease	8	32%
Chronic Renal Failure	6	24%

Table 4:Pneumonia Assessment score According CURB-65

Pneumonia Assessment score	Frequency	Percent (%)
≤ 65	12	48%
> 65	13	52%
Total	25	100%

Discussion:

In this study it was found that the old age patients above 65 years old represent the majority of cases this could be due to poor functional health and the presence of undrlying diseases, this result is similar to a study (Shorr A,et al. 2005) (5).
and also similar to the result in the study done by(Arnold Fw1 et al.2009) (6)
Regarding the gender in this study there was a male predominance, this is correlated with another study (Anzueto A, et al. Clin Infect Dis. 2006(7).
and also similar to the result in the study done by (Frei CR, et al. Clin Ther. 2010)

Regarding the clinical profile in this study there was cough is higher percentage 80%,a lower percentage pleuritic chest pain 40% , this is correlated with another study(Seo H, et al.2018)(9)

Regarding Comorbidities in this study there was diabetes mellitus is higher 48 % , this is correlated with another study (Thomas Benfield,et al.2007) (10)

,

Conclusion

In this study was found that a male predominance , the majority of age groups above 60 years old , the commonest mode of presentation was cough (80%) followed by sputum (72%), and comorbid diabetics mellitus had higher percentage than other comorbidities .

Recommendations

Future studies with a larger sample size, multicentric approach, over a longer time period are recommended to further confirm and globalize the results and possibly apply them in therapeutic trials.

References

(1) Pugh R Grant C, Cooke RP, Dempsey G. **Short-course versus prolonged-course antibiotic therapy for hospital-acquired pneumonia in critically ill adults.** Department of Anaesthetics,Glan Clwyd Hospital, Rhyl, Denbighshire, UK, LL18 5UJ.

(2) Venditti M, et al. **Outcomes of patients hospitalized with community-acquired, health care-associated, and hospitalacquired pneumonia**. Ann Intern Med. 2009.

(3) Melvani S, Burrell LL, Johnson PD, Grayson ML Charles PG Ananda-Rajah MR

Comparing the pneumonia severity index with CURB-65 in patients admitted with community acquired pneumonia. cand J Infect Dis. 2008;40(4):293-300.

(4) Emmi v. et al**. [Guidelines for treatment of pneumonia in intensive care units].** fez Med.In17.-2005;Suppl:7

(5) Shorr AF, et al. Clin Ther. 2005.**A multicenter, randomized, double-blind, retrospective comparison of 5- and 10-day regimens of levofloxacin in a subgroup of patients aged > or =65 years with community-acquired pneumonia.**Anzueto A1, Niederman MS, Pearle J, Restrepo MI, Heyder A, Choudhri SH; Community-Acquired Pneumonia Recovery in the Elderly Study Group. Author information 1 Pulmonary, Critical Care, and Sleep Medicine Service, Uniformed Services University of the Health Sciences, Bethesda, Maryland, USA. afshorr@dnamail.com , Clin Ther. 2005 Aug;27(8):1251-9.

(6)Arnold FW, et al. Arch Intern Med. 2009.**Improving outcomes in elderly patients with community-acquired pneumonia by adhering to national guidelines: Community-Acquired Pneumonia Organization International cohort study results.**Arnold FW1, LaJoie AS, Brock GN, Peyrani P, Rello J, Menéndez R, Lopardo G, Torres A, Rossi P, Ramirez JA; Community-Acquired Pneumonia Organization (CAPO) Investigators.information 1 Division of Infectious Diseases, Department

of Medicine, School of Medicine, University of Louisville, 627 Preston St, Ste 100, Louisville, KY 40202, USA. f.arnold@louisville.edu , Arch Intern Med. 2009 Sep 14;169(16):1515-24. doi: 10.1001/archinternmed.2009.265.

(7) Anzueto A, et al. Clin Infect Dis. 2006.**Community-Acquired Pneumonia Recovery in the Elderly (CAPRIE): efficacy and safety of moxifloxacin therapy versus that of levofloxacin therapy**. Anzueto A1, Niederman MS, Pearle J, Restrepo MI, Heyder A, Choudhri SH; Community-Acquired Pneumonia Recovery in the Elderly Study Group. information 1 Department of Medicine, University of Texas Health Science Center, San Antonio, TX, USA. Anzueto@uthscsa.eduClin Infect Dis. 2006 Jan 1;42(1):73-81. Epub 2005 Nov 22.

(8) Frei CR, et al. Clin Ther. 2010 **Guideline-concordant antibiotic use and survival among patients with community-acquired pneumonia admitted to the intensive care unit.Frei CR1**, Attridge RT, Mortensen EM, Restrepo MI, Yu Y, Oramasionwu CU, Ruiz JL, Burgess DS. information 1 University of Texas at Austin, College of Pharmacy, Austin, Texas, USA.Clin Ther. 2010 Feb;32(2):293-9. doi: 10.1016/j.clinthera.2010.02.006.

(9) Seo H, et al. Am J Med Sci. 2018**.Relationship Between Clinical Features and Computed Tomographic Findings in Hospitalized Adult Patients With Community-Acquired Pneumonia.**Seo H1, Cha SI2, Shin KM3, Lim JK3, Yoo SS1, Lee SY1, Lee J1, Kim CH1, Park JY1.information Department of Interna Medicine, School of Medicine, Kyungpook National University, Kyungpook National University Hospital, Daegu, South Korea.Am J Med Sci. 2018 Jul;356(1):30-38. doi: 10.1016/j.amjms.2018.03.024. Epub 2018 Apr 3.

(10)Thomas Benfield, JS Jensen, BG Nordestgaard, **Influence of diabetes and hyperglycaemia on infectious disease hospitalisation and outcome** Diabetologia 50 (3), 549-554, 2007.