IMPACT OF ADHERENCE TO COMMUNITY ACQUIRED PNEUMONIA MANAGEMENT GUIDELINES ON PATIENT OUTCOME

Thesis

Submitted for Partial Fulfillment of the Master Degree in Chest Diseases

By

Eman Abd Al Halem AbdAlah Al Kholy

M.B.B.ch

Faculty of Medicine, Ain Shams University

Supervised by

Prof.Dr.Mohammed Farrag

Professor of Chest Diseases

Faculty of Medicine

Ain Shams University

Dr. Samar Hasan Sharkawy

Assistant Professor of Chest Diseases

Faculty of Medicine

Ain Shams University

Faculty of Medicine

Ain Shams University

2012

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ ۝ خَلَقَ الْإِنسَانَ

مِنْ عَلَقٍ ۝ اقْرَأْ وَرَبُّكَ الْأَكْرَمُ ۝ الَّذِي عَلَّمَ

بِالْقَلَمِ ۝ عَلَّمَ الْإِنسَانَ مَا لَمْ يَعْلَمْ ۝

صَـــدَقَ اللهُ العَظِـــيم

" سورة العلق آية 1 إلى 5 "

Acknowledgment

First of all I would like to thank Allah for everything and for helping me to finish this work, and I wish Allah blessing our steps all life.

Then, from the deep of my heart with all respect and appreciation I really need to gratitude Prof. Dr Mohammed Farrag, Professor of Chest Diseases, Faculty of Medicine, Ain Shams University, for his patience, help and guidance along the course of this study. I am also grateful to, Dr Samar Hasan Sharkawy, Assistant Professor of Chest Diseases, Faculty of Medicine, Ain Shams University, for her support, help and encouragement.

Finally, but not the last, I would like to express my deep thanks and love to all my Family, all my Friends and Everyone who helped me.

LIST OF ABBREVIATIONS

ACIP	Advisory Committee on Immunization practices
AECB	Acute- exacerbation of chronic bronchitis
AIDS	Acquired immunodeficiency syndrome
ALI	Acute lung injury
ARDS	Acute respiratory distress syndrome
ATS	American Thoracic Society
BOOP	Bronchiolitis obliterans organizing pneumonia
CA-MRSA	Community acquired methicillin resistant Staphylococcus aureus
CAP	Community-acquired pneumonia
CDC	Centers for disease control and prevention
CI	Confidence interval
COPD	Chronic obstructive pulmonary disease
COP	Cryptogenic organizing pneumonitis
CPGs	Clinical practice guidelines
CURB-65	Confusion, uremia, respiratory rate, low blood pressure, age 65or greater
DM	Diabetes mellitus
DRSP	Drug-resistant Strept pneumonia
EBM	Evidence-Based Medicine
ECG	Electrocardiography
ED	Emergency department
ESR	Erythrocyte sedimentation rate
FDA	Food and Drug Administration
HB	Hemoglobin
HCAP	Healthcare-associated pneumonia
HIV	Human immunodeficiency virus
HPS	Hantavirus pulmonary syndrome
ICU	Intensive care unit
IDSA	Infectious Diseases Society of America
LOS	Length of stay in hospital
LRTIs	Lower respiratory tract infections
LRT	Lower respiratory tract

MRSA	Methicillin resistant staphylococcus aureus
NHS	National health service
PCP	Pneumocystis (carinii) jiroveci pneumonia
PSI	Pneumonia Severity Index
RICU	Respiratory intensive care unit
SARS	Severe acute respiratory syndrome
S.createnine	Serum createnine
SD	Standard deviation
SGOT	Serum glutamic oxaloacetic transaminase
SGPT	Serum glutamic pyruvic transaminase
SLE	Systemic lupus erythrematosis
TCS	Time to clinical stability
TLC	Total leucocytic count
VAP	Ventilator-associated pneumonia

LIST OF CONTENTS

LIST OF TABLES

INTRODUCTION

Community-acquired pneumonia (CAP) is a common illness worldwide, and guidelines for management have been developed in many countries in the past 15 years following the initial development of CAP guidelines in North America in 1993. The most recent guidelines for the United States were published in 2007 as a joint effort of the American Thoracic Society (ATS) and the Infectious Diseases Society of America (IDSA) **(Mandell et al., 2007).**

The current IDSA/ATS guidelines for CAP divide patients into three groups: outpatients, those admitted to the hospital but not the ICU, and those admitted to the ICU. For each group of patients, there is a list of likely pathogens, and the initial empirical therapy is chosen with these organisms in mind. If a specific pathogen is subsequently identified by diagnostic testing, then therapy can be focused. In this scheme, it is also important to identify patients with healthcare-associated pneumonia (HCAP), and to exclude them from CAP management because these patients require their own management approach, with some needing therapy similar to CAP, whereas others require therapy that is similar to that for nosocomial pneumonia **(Niederman and Brito, 2007).**

In choosing empirical therapy of CAP, certain principles should guide therapy **(Woodhead et al., 2005).** The principles that apply to empirical therapy in U.S. guidelines are to give the first dose of therapy rapidly and before the patient leaves the emergency department; all patients should be treated for atypical pathogens and pneumococcus, plus other pathogens based on risk factors; monotherapy with macrolides can be used but should be limited to selected inpatients and outpatients with no cardiopulmonary disease or recent antibiotic therapy; antipseudomonal therapy should only be used for patients with pseudomonal risk factors; MRSA therapy (vancomycin/ linezolid) should be used cautiously; and no ICU-admitted CAP patient should receive monotherapy. The greatest differences from European guidelines are the recommendation for routine atypical pathogen coverage in North America, and a trend to use penicillins and to avoid quinolones in the United Kingdom **(File et al., 2004)**.

The latest IDSA/ATS guidelines have addressed these performance measures, endorsing some but rejecting others, particularly the standard related to the timing of antibiotic administration **(Mandell et al., 2007).**

Delayed antibiotic therapy has been associated with increased risk of death. Therefore, a correct and rapid diagnosis is

mandatory. Two major studies have suggested that early diagnosis and early antibiotic administration are associated with improved survival and decreased length of stay in CAP **(Houck et al., 2004; Meehan et al., 1997**).

The US Centers for Medicare and Medicaid Services use the timing of first administration of antibiotics to patients admitted for pneumonia as a quality core measure for public reporting. In 2004, the Centers for Medicare and Medicaid Services adopted a 4-h antibiotic rule as a quality measure. The 4-h cutoff time for initial antibiotic administration as a quality core measure was questioned in some studies **(Welker et al., 2008; Kanwar et al., 2007)**. Kanwar and colleagues compared hospitalized CAP patients before and after the 4-h rule and found that endorsement of the 4-h rule led to increased use of antibiotics **(Kanwar et al., 2007).**

AIM OF THE WORK

Evaluation of adherence to guidelines management of community acquired pneumonia in a random sample of adult patients and its impact on patient outcome in comparison to non-adherent patients expressed as time of clinical stability and length of stay in hospital (LOS).

Evidence-Based Medicine came to the fore in the early 1990s and has become a major driving force for many national healthcare organizations. The term and concept originated at McMaster University. It has been defined as "*the integration of best research evidence with clinical expertise and patient values*". EBM advocates the use of up-to-date "*best*" scientific evidence from health care research as the basis for making medical decisions.

For supporters, EBM has three main advantages:

1-It offers the surest and most objective way to determine and maintain consistently high quality and safety standards in medical practice.

2-It can help speed up the process of transferring clinical research findings into practice.

3-It has the potential to reduce health-care costs significantly.

The approach, however, is not without its opponents. These consider that EBM risks downplaying the importance of clinical experience and expert opinion, and that the conditions under which clinical trials used to define best practice take place are hard to replicate in routine practice. **(*Guyatt G, et al,2004)***

The standard definition of Clinical practice guidelines (*CPGs*) is : "*systematically developed statements to assist practitioners and patient decisions about appropriate health care for specific circumstances*" (***Field and Lohr,1990).***Guidelines are

designed to support the decision-making processes in patient care The content of a guideline is based on a systematic review of clinical evidence - the main source for evidence-based care.

A medical guideline (*also called a clinical guideline, clinical protocol or clinical practice guideline*) is a document with the aim of guiding decisions and criteria regarding diagnosis, management, and treatment in specific areas of healthcare. Such documents have been in use for thousands of years during the entire history of medicine. However, in contrast to previous approaches, which were often based on tradition or authority, modern medical guidelines are based on an examination of current evidence within the paradigm of evidence-based medicine.

They usually include summarized consensus statements on best practice in healthcare. A healthcare provider is obliged to know the medical guidelines of his or her profession, and has to decide whether or not to follow the recommendations of a guideline for an individual treatment (C***ouncil of Europe., 2002).***

Modern clinical guidelines identify, summarize and evaluate the highest quality evidence and most current data about prevention, diagnosis, prognosis, therapy including dosage of medications, risk/benefit and cost-effectiveness. Then they define the most important questions related to clinical practice and identify all possible decision options and their outcomes. Some