KLEBSIELLA PNEUMONIA STRAINS IN SPUTUM SAMPLES AND THE EFFICIENCY OF DIFFERENT ANTIBIOTICS AGAINST THEM: A LABORATORY ASSESSMENT

Article · October 2019

CITATIONS
0

READS
7

2 authors:

Khaled Alhomsi
Alsham (ASPU) Private University
18 PUBLICATIONS **1** CITATION
SEE PROFILE

Mhd Nezar Alsharif
Damascus University
40 PUBLICATIONS **0** CITATIONS
SEE PROFILE

EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 6
Issue: 11
377-379
Year: 2019

KLEBSIELLA PNEUMONIA STRAINS IN SPUTUM SAMPLES AND THE EFFICIENCY OF DIFFERENT ANTIBIOTICS AGAINST THEM: A LABORATORY ASSESSMENT

Khaled Alhomsi[1,2]* and Mhd. Nezar Alsharif[3,4]

[1]Alsham Private University (ASPU), Damascus, Syria.
[2]Alhomsi Clinical Laboratories, Damascus, Syria.
[3]Resident at Al-Mousaat University Hospital, Department of Internal Medicine, Damascus, Syria.
[4]Resident at Al-Assad University Hospital, Department of Internal Medicine, Damascus, Syria.

***Corresponding Author: Khaled Alhomsi**
Alsham Private University (ASPU), Damascus, Syria.
Email id: k.a.foph.lat@aspu.edu.sy,

Article Received on 20/08/2019 **Article Revised on 10/09/2019** **Article Accepted on 01/10/2019**

ABSTRACT
Objective: This study aimed to determine Klebsiella pneumonia strains reaction to different antibiotics. **Materials and methods:** This study was a retrospective study of all the sputum cultures with Klebsiella Pneumonia infection of the patients who reviewed Alhomsi laboratory between 7/3/2018 to 25/9/2019. This study included 51 cases. All samples were sputum samples with Klebsiella Pneumonia infection. **Results:** Only one medication in our study (Imipenem) had a predominant sensitivity against Klebsiella pneumonia strains.

KEYWORDS: This study aimed to determine Klebsiella pneumonia strains reaction to different antibiotics.

INTRODUCTION
Antibiotics has changed medicine and saved millions of lives for decades now. However, bacterial resistance is becoming a major problem by causing adverse effects on morbidity and mortality rates.[1-6] The antibiotic resistance crisis has been related to the lack of awareness about these medications, the misuse and overuse of them.[2-5] According to the Centers for Disease Control and Prevention in the U.S, some of the bacteria due to its very high resistance are becoming an urgent and serious concern. Moreover, this issue could be causing a burden clinically and financially on the healthcare systems worldwide.[1,5,7,8]

MATERIALS AND METHODS
This study was a retrospective study of all the sputum cultures with Klebsiella Pneumonia infection of the patients who reviewed Alhomsi laboratory between 7/3/2018 to 25/9/2019. This study included 51 cases. All samples were sputum samples with Klebsiella Pneumonia infection. Only the authors to ensure the privacy collected all the data and all the names and personal information were blinded. Informed consent was taken from all the patients to be included in this study. Statistical analysis was done using SPSS 25.0.

RESULTS

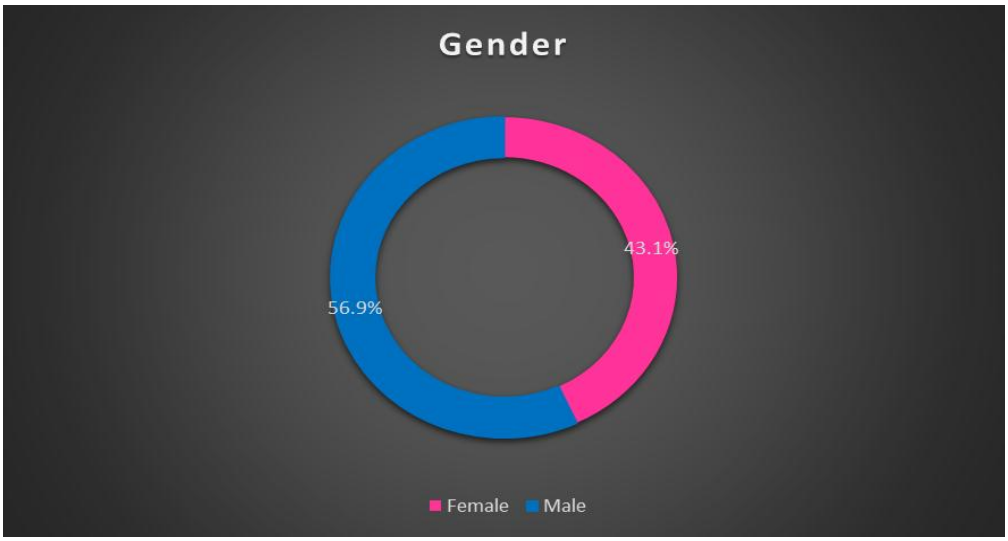

Figure 1: Gender Distribution of Our Study.

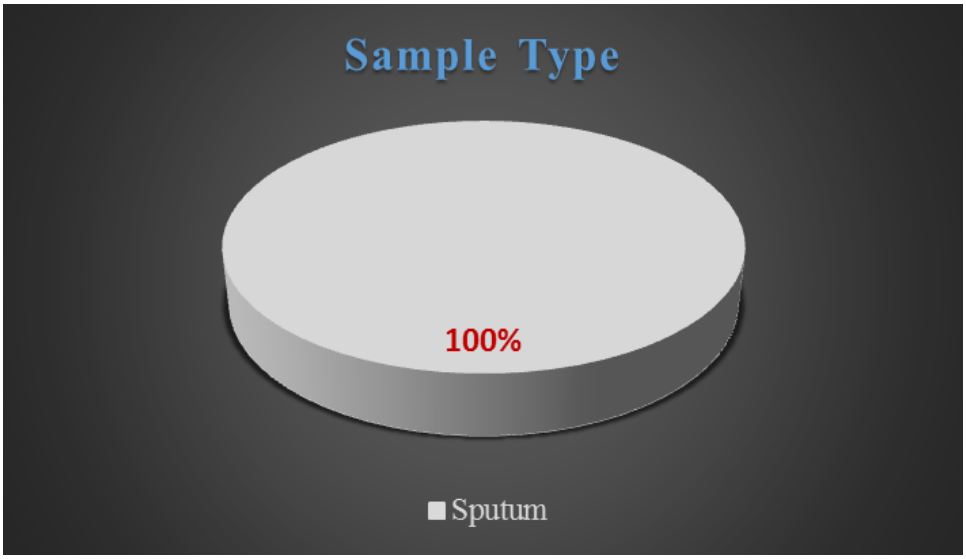

Figure 2: Source of samples in our study.

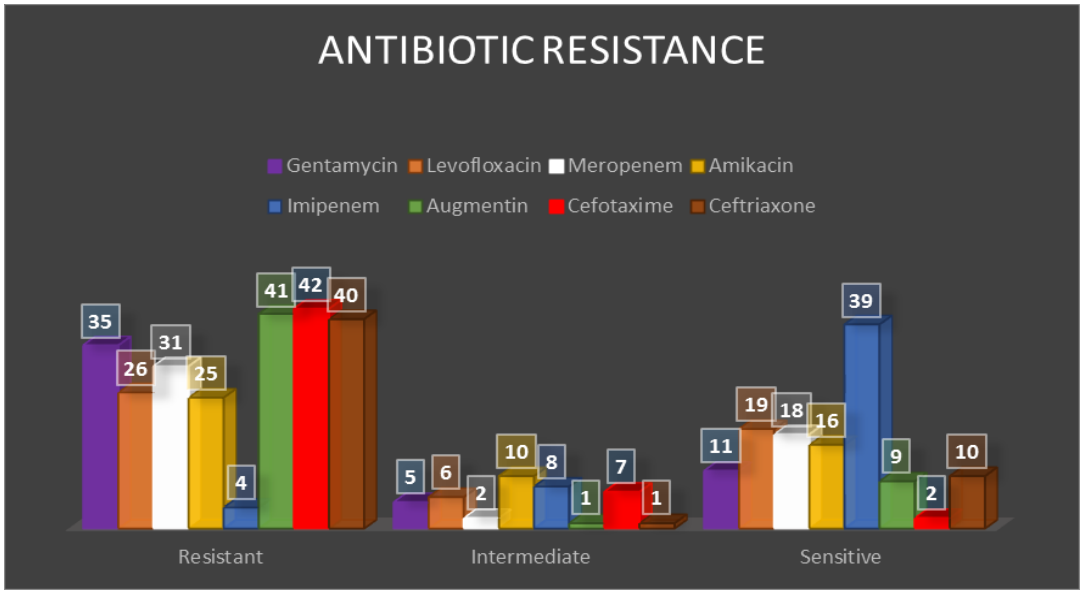

Figure 3: Frequency of cases that are (Resistant, Sensitive, and Intermediate) to different antibiotic therapies.

DISCUSSION

This study was done to determine the resistance of Klebsiella pneumonia to commonly used antibiotics. Our study included 51 cases of Klebsiella pneumonia infection with a predominance of males 33 cases (52.4%) and 30 females (47.6%). (Figure 1) All of the cases sputum samples (Figure 2). A similar study[9] showed that Klebsiella pneumonia resistance to Cephalosporins was (11.3%), which was the highest, while the resistance to Carbapenems was (3.3%).

In our study, Klebsiella pneumonia was resistant to Cephalosporins with a statistical significant ($p<0.05$) in 82.5% for Cefotaxime and 79% for Ceftriaxone. Klebsiella pneumonia resistance to Fluoroquinolones (Levofloxacin) was 51%. Furthermore, 69% and 49.5% of Klebsiella pneumonia specimen had resistance against gentamycin and amikacin, respectively (Both Aminoglycosides). Regarding Carbapenems (meropenem specifically) 60% of Klebsiella pneumonia strains were resistant to it. Resistance to Augmentin was also high with 81%. (Figure 3).

Only one medication in our study (Imipenem) had a more prevalent sensitivity against Klebsiella pneumonia with a statistical significance ($p<0.05$) in which 76% of Klebsiella pneumonia cases were sensitive to it. (Figure 3).

It should be noted that the resistance of the Klebsiella pneumonia in our study to different antibiotics was much higher than the resistance percentages of similar studies[9] and that shows the obvious misuse, overuse and lack of knowledge about their effects among general population.

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.

REFERENCES

1. Golkar Z, Bagazra O, Pace DG. Bacteriophage therapy: a potential solution for the antibiotic resistance crisis. J Infect Dev Ctries, 2014; 8(2): 129–136. 13. [PubMed]
2. Gould IM, Bal AM. New antibiotic agents in the pipeline and how they can overcome microbial resistance. Virulence, 2013; 4(2): 185–191. [PMC free article] [PubMed]
3. Wright GD. Something new: revisiting natural products in antibiotic drug discovery. Can J Microbiol, 2014; 60(3): 147–154. [PubMed]
4. Sengupta S, Chattopadhyay MK, Grossart HP. The multifaceted roles of antibiotics and antibiotic resistance in nature. Front Microbiol, 2013; 4: 47. [PMC free article] [PubMed]
5. Centers for Disease Control and Prevention, Office of Infectious Disease Antibiotic resistance threats in the United States, 2013. Apr, 2013. Available at: http://www.cdc.gov/drugresistance/threat-report-2013. Accessed January 28, 2015.
6. Congressional Research Service Report Life expectancy in the United States. Mar, 2005. Available at: http://www.cnie.org/nle/crsreports/05mar/RL32792.pdf. Accessed January 5, 2015.
7. Lushniak BD. Antibiotic resistance: a public health crisis. Public Health Rep., 2014; 129(4): 314–316. [PMC free article] [PubMed]
8. Rossolini GM, Arena F, Pecile P, Pollini S. Update on the antibiotic resistance crisis. Clin Opin Pharmacol, 2014; 18: 56–60. [PubMed]
9. Edelsberg, J., et al., Prevalence of antibiotic resistance in US hospitals. Diagnostic microbiology and infectious disease, 2014; 78(3): 255-262.