PalStudent Journal
A Palestinian Scientific Journal for the Youth

ABSTRACTS: VOLUME 6, SPECIAL ISSUE

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Evaluation of Antibiotic Therapy and Clinical Outcomes for Community-acquired Pneumonia in Hospitalized Adults: A prospective cohort study in Palestine

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Background: Community-acquired pneumonia (CAP) is considered as the most common infectious cause of death and the second most common cause of hospitalization in the United States. CAP is a major cause of antibiotics prescription and hospitalization worldwide, so rational prescribing of antibiotics needs to be paid attention. Data describing the actual management and effectiveness of several classes of antibiotics in treating CAP patients in Palestine are limited.

Objectives: The purpose of this prospective cohort study was to evaluate and compare the effectiveness of different empiric antibiotics in the treatment of CAP patients based on clinical outcomes, including length of hospitalization, readmission rate, and laboratory results.

Methods: Palestinian patients aged ≥ 18, hospitalized with CAP between 1st of October 2023 and 15th of February 2024, and started on empiric treatment. A Case Report Form was used to specify patients' personal information, patients' medical files for gathering

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information regarding investigations and management, excel sheets for organizing data, and SPSS version 27 for data analysis.

Results: Patients (N=123) were recruited from Al-Ahli hospital, Hebron, Palestine. Mean age of patients was 59.4 years and had CAP only (75.6% of all patients presented with respiratory infection). 68.3% of patients have a history of current or recent antibiotics use. Chest X-Ray (CXR) showed findings of infection in 69.3% of patients who had CXR. Only 4% of blood cultures were positive. The most frequent empiric antibiotic used was a combination of ceftriaxone with azithromycin in 35% of patients. Modification of therapy occurred in 61% of patients. None of the used regimens showed significant difference in decreasing O2 supplementation needed in 48 hours of treatment. White blood cell (WBC) count significantly decreases by using ceftriaxone alone or ceftriaxone with azithromycin after one day of starting the antibiotic. Regarding clinical response, nearly all regimens are proven to improve patient's health. Mean length of hospitalization was 5 days. Readmission rate was 21.3%.

Conclusion: This data provides a current overview of clinical practice in patients with CAP at Al-Ahli hospital, Hebron, Palestine. Revealing high rates of initial antibiotic treatment modification. The findings may precipitate the need to apply an antibiotic stewardship program that implies the use of antibiotics exclusively for patients who need them.

Keywords: Community-acquired pneumonia, Antibiotics, Prospective cohort study, Clinical Outcomes

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