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ADHERENCE TO IDSA GUIDELINES FOR TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA IN THE OUTPATIENT SETTINGS IN ONE PUBLIC HOSPITAL AT AL-SEIH REGION

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Abstract:

Introduction *Respiratory tract infections are one of the most important causes of morbidity and mortality throughout the world, among them pneumonia is the infection that most frequently produces death. Evidence-based guidelines have been developed to improve the appropriate use of antibiotics.*

Methodology *This is a retrospective study of the treatment of 100 adult patients with community-acquired pneumonia (CAP) who were treated in the outpatient setting in a public hospital. The initial empirical treatment was classified as adhering or not to IDSA CAP treatment guideline.*

Results and Discussion *The majority of the patients treated with either Amoxicillin (39%) or Amoxicillin/Clavulanic acid (35 %). Most of the patients were not treated appropriately (95%). Only 5 patients were treated as the recommendations of the guideline. These results illustrate the needs for antibiotic stewardship to improve the prescribing, dispensing and the use of antibiotics.*

Conclusion *Patients with CAP were treated inconsistently with the IDSA guideline. Non-adherence to guidelines recommendations may result in many negative outcomes. Therefore, it is important to follow the recommendations and to increase the awareness about the appropriate use of antibiotics.*

Key Words: *Adherence, IDSA Guideline, Community-Acquired Pneumonia, outpatient.*

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INTRODUCTION:

Respiratory tract infections constitute one of the most important causes of morbidity and mortality throughout the world, and, among them, pneumonia is the infection that most frequently produces death (1, 2). Although 80% of the treatment for CAP is provided in the outpatient setting most of the published research has only studied hospitalized patients (3, 4).

Initial antibiotic treatment is key for the resolution of infection and for prognosis, with higher mortality if the treatment is inappropriate. The difficulty in selecting the appropriate antibiotics arises because CAP can be caused by multiple organisms, which cannot be identified on clinical and radiographic findings, and the conventional microbiological methods have limited sensitivity and specificity, and delay in the culture and sensitivity results (5). Thus, usually the antibiotic treatment is chosen empirically at the time of diagnosis. Evidence-based guidelines have been developed by scientific societies to assist physicians in the selection of antibiotics (6-8) and to reduce variability in clinical care (9).

At the time that antibiotic treatment needs to be administered, the causal microorganisms generally have yet to be identified. To guide the choice of appropriate initial antibiotic regimen, recommendations for CAP management have been published by various scientific societies, including the British Thoracic Society (10), the American Thoracic Society (ATS) (11), Infectious Diseases Society of America (IDSA) (12,13), the Canadian Infectious Diseases Society (14) and the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) (15). The IDSA revised their guidelines in September 2000 (16) and updated them in March 2007 (17).

The Outpatient treatment of CAD in IDSA is divided into; treatment of Previously healthy patients and with no risk factors for drug-resistant S. pneumonia (DRSP) infection include the use of a macrolide or doxycycline, and in the presence of comorbidities; such as chronic diseases, alcoholism, malignancies, asplenia, use of antimicrobials within the previous 3 months, immunosuppressing conditions or use of immunosuppressing drugs, in these cases a respiratory fluoroquinolone or a combination of β-lactam and either a macrolide or doxycycline should be used To the best of our knowledge, there is no study about the adherence to IDSA Guideline in Al-Seih region. Therefore, the aim of this study is to explore the rate of prescriber's adherence to the IDSA Guideline in the treatment of CAP for adults in the outpatient settings in one public hospital in Al-Seih Region.

METHODOLOGY:

This is a retrospective study of the treatment of 100 adult patients with community-acquired pneumonia who were treated in the outpatient setting in a public hospital in Al-Seih region. Data were collected from medical records and the initial empirical treatment was classified as adhering or not to IDSA guideline for the treatment of CAP. After collecting the data, we use Excel software to prepare figures and Tables. The inclusion criteria include outpatient, adult, community-acquired pneumonia. However, the exclusion criteria include inpatient settings, another diagnosis, pediatric and infant patients. The research is approved by IRB committee with log number 19-126E.

RESULTS:

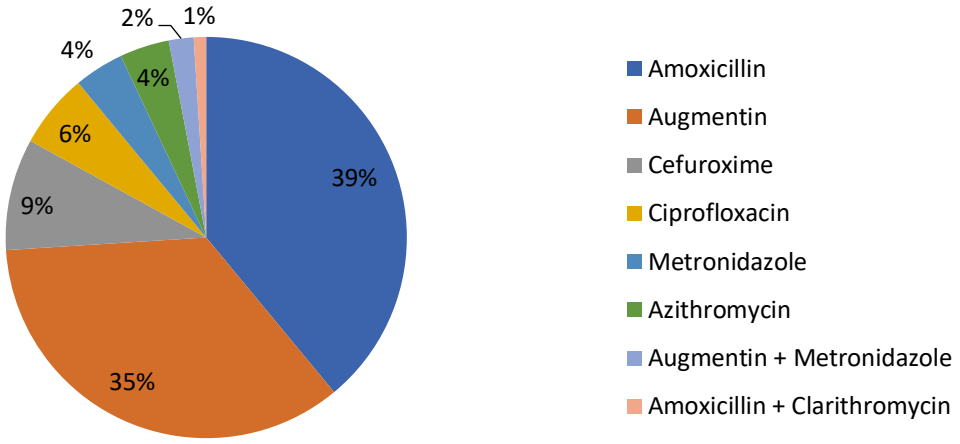
This study aims to evaluate the adherence to IDSA guideline in the treatment of community-acquired pneumonia in the outpatient settings. We evaluate the prescriptions of 100 patients, all the patient were adults.

Most of the patients treated with either Amoxicillin (39%) or Amoxicillin/Clavulanic acid (35 %). The prescriptions contain mainly 1 drug (97%) and only 3 Prescriptions contain combinations. The antibiotics that were used in the treatment of CAD patient are presented in Table 1 and Figure 1.

Table 1.The antibiotics that were used in the treatment of CAD patient

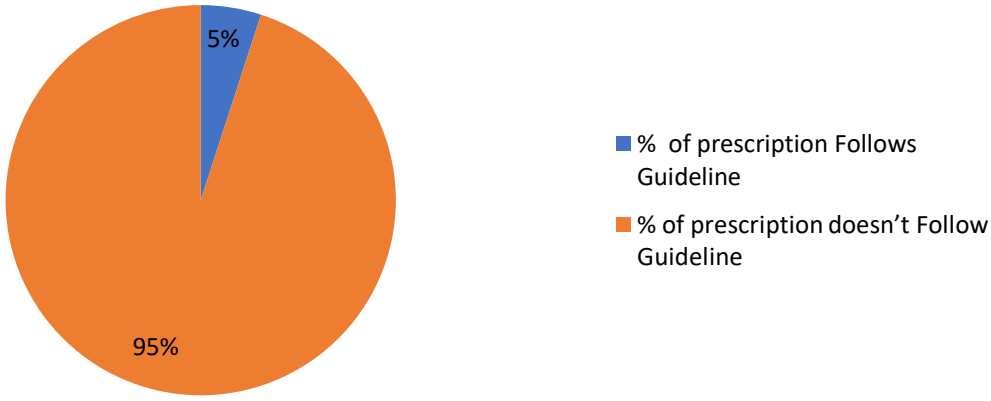
Antibiotics	Frequency of use
Amoxicillin	39
Augmentin	35
Cefuroxime	9
Ciprofloxacin	6
Metronidazole	4
Azithromycin	4
Augmentin + Metronidazole	2
Amoxicillin + Clarithromycin	1

Figure1. The antibiotics that were used in the treatment of CAD patient



Out of these 100 prescriptions, only 5 follow the guideline; 95 % don't follow the IDSA guideline. Percentage of prescriptions that adhered to the guideline is presented in Figure 2.

Figure 2. Percentage of prescriptions that adhered to the guideline



DISCUSSION:

Evidence-based guidelines have been developed by scientific societies to assist physicians in the selection of antibiotics and to reduce variability in clinical care. One of them is IDSA guidelines that updated for management of CAP in 2007, which chose in the present study. As, IDSA recommendations make a treatment guideline for the pediatrics and adults' patients, taking in consideration the difference between the types of organisms affect the different populations. In addition to that IDSA guideline divides the treatment recommendations into outpatients or inpatients. Therefore, it is more convenient to be applied.

In this study, we evaluate the rate of adherence to the guideline for the treatment of adults in outpatient settings. We evaluated the treatment of 100 patients. Most of the patients were not treated appropriately (95%). Only 5 patients were treated as the recommendations of the guideline. These results are in contrast to the studies of Daniel C Malone et al (2001), Douwe F. Postma et al (2015) and Drahomir Aujesky et al (2005) (18-20). Daniel C Malone et al (2001) reported that only 15.5 % of the patients were not treated with recommended antimicrobial therapy. Douwe F. Postma et al (2015) reported that most of the prescribers followed the guideline recommendations. Moreover, Drahomir Aujesky et al (2005) reported that the overall guideline adherence was excellent for about 80%.

The Outpatient treatment of CAD in IDSA is divided into; treatment of Previously healthy patients and with no risk factors for drug-resistant S. pneumonia (DRSP) infection include the use of a macrolide or doxycycline, and in the presence of comorbidities; such as chronic diseases alcoholism, malignancies, asplenia, use of antimicrobials within the previous 3 months, immunosuppressing conditions or use of immunosuppressing drugs, in these cases a respiratory fluoroquinolone or a combination of β-lactam and either a macrolide or doxycycline should be used.
Most of the patients were treated with amoxicillin or co-amoxiclav as a monotherapy (74%), and this is not appropriate because the guideline recommends the use of these drugs as a combination with a macrolide or doxycycline. Additionally, co-amoxiclav is given with metronidazole in 2 prescriptions inappropriately. Moreover, 4 patients treated with metronidazole, 9 patients treated with cefuroxime. Furthermore, 6 patients treated with ciprofloxacin, which is not a respiratory fluoroquinolone, thus were not adherent to the guideline recommendations. As, The IDSA guideline documented that only moxifloxacin, gemifloxacin, and levofloxacin are the respiratory fluoroquinolone that recommended to be used empirically in CAP management.

The data of the present work showed that only 5 patients followed the IDSA guideline. Where, 4 patients were treated with azithromycin, and 1 patient was treated with a combination of amoxicillin and clarithromycin.

These results illustrate the needs for antibiotic stewardship to improve the prescribing, dispensing and the use of antibiotics.

CONCLUSION:

Patients with CAP were treated consistently with the IDSA guideline. Non-adherence to guidelines recommendations results in increasing of bacterial resistance, in addition to increase the negative outcomes and the mortality for these patients. In contrast, the follow of CAP guidelines recommendations results in improving the cost-effectiveness of care, and increase the positive outcomes for the patients. Therefore, it is important to follow the guideline recommendations and to increase the awareness of health care professionals about the appropriate use of antibiotics.

REFERENCES:

1. Minino AM, Smith BL. Deaths: Preliminary data for 2000. National vital statistics reports; vol 49 no 12. Hyattsville, Maryland: National Center for Health Statistics. 2001.
2. European Respiratory Society .Pneumonia. In: Loddenkemper R European Lung White Book. Loussane; 2003: 55-65
3. Ye, X., Sikirica, V., Schein, J., Grant, R., Zarotsky, V., Doshi, D., Benson, C. and Riedel, A. (2008). Treatment failure rates and health care utilization and costs among patients with community-acquired pneumonia treated with levofloxacin or macrolides in an outpatient setting: A retrospective claims database analysis. *Clinical Therapeutics*, 30(2), pp.358-371.
4. Mandell, L., Marrie, T., Grossman, R., Chow, A. and Hyland, R. (2000). Canadian Guidelines for the Initial Management of Community-Acquired Pneumonia: An Evidence-Based Update by the Canadian Infectious Diseases Society and the Canadian Thoracic Society. *Clinical Infectious Diseases*, 31(2), pp.383-421.
5. San Pedro GS, Campbell GD Jr. Limitations of diagnostic testing in the initial management of patients with community-acquired pneumonia. *Semin Respir Infect* 1997;12:300–307.
6. Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, Dean N, File T, Fine MJ, Gross PA, *et al.* Guidelines for the management of adults with community-acquired pneumonia: diagnosis, assessment of severity, antimicrobial therapy, and prevention. *Am J Respir Crit Care Med* 2001;163:1730–1754
7. Bartlett JG, Dowell SF, Mandell LA, File TM Jr, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. *Clin Infect Dis* 2000;31:347–382.

8. Macfarlane J, Boswell T, Douglas G, Finch R, Holmes W, Honeybourne D, Lim WS, Marriott R, Nathwani D, Sane P, *et al*. BTS guidelines for the management of community acquired pneumonia in adults. *Thorax* 2001;56(IV):1–64.
9. Fine JM, Fine MJ, Galusha D, Petrillo M, Meehan TP. Patient and hospital characteristics associated with recommended processes of care for elderly patients hospitalized with pneumonia: results from the Medicare Quality Indicator System Pneumonia Module. *Arch Intern Med* 2002;162:827–833.
10. BTS Guidelines for the Management of Community Acquired Pneumonia in Adults. (2001). *Thorax*, 56(Supplement 4), pp.iv1-iv64.
11. American Thoracic Society Guidelines for the management of adults with community-acquired pneumonia: diagnosis, assessment of severity, antimicrobial therapy, and prevention *Am J Respir Crit Care Med* 2001 163173054, Mandell LA,Bartlett. JG,Dowell.SF, File TM, Jr Musher, DM, Whitney.C.
12. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults *Clin Infect Dis* 2003 37 1405 33. Bartlett JG, Dowell SF, Mandell LA, File TM, Musher DM, Fine MJ.
13. Practice guidelines for the management of community-acquired pneumonia in adults *Clin Infect Dis* 2000 3134782. Mandell LA, Marrie TJ, Grossman RF, Chow AW, Hyland RH
14. Canadian guidelines for the initial management of community-acquired pneumonia: an evidence-based update by the Canadian Infectious Society and the Canadian Thoracic Society. The Canadian Community-Acquired Pneumonia Working Group *Clin Infect Dis* 2000 31383421
15. Guidelines for the diagnosis and treatment of community-acquired pneumonia Spanish Society of Pulmonology and Thoracic Surgery (SEPAR). SEPAR Working Group on Community-Acquired Pneumonia. Tuberculosis and Respiratory Infections Assembly *Arch Bronconeumol* 2005 4127289. Bartlett JG, Dowell SF, Mandell LA, File TM Musher DM, Fine MJ
16. Practice guidelines for the management of community-acquired pneumonia in adults *Clin Infect Dis* 2000 3134782. Mandell LA, Bartlett JG, Dowell SF, File TM, Jr .Musher, DM Whitney C
17. Lionel A. Mandell, Richard G. Wunderink, Antonio Anzueto, John G. Bartlett, G. Douglas Campbell, Nathan C. Dean, Scott F. Dowell, Thomas M. File, Daniel M. Musher, Michael S. Niederman, Antonio Torres, Cynthia G. Whitney, Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults, *Clinical Infectious Diseases*, Volume 44, Issue Supplement_2, 1 March 2007, Pages S27–S72, https://doi.org/10.1086/511159
18. Malone, D. and Shaban, H. (2001). Adherence to ATS Guidelines for Hospitalized Patients with Community-Acquired Pneumonia. *Annals of Pharmacotherapy*, 35(10), pp.1180-1185.
19. Trapani, D. and Bonzi, M. (2015). Antibiotic treatment strategies for community-acquired pneumonia in adults. *Internal and Emergency Medicine*, 10(7), pp.861-863.
20. Aujesky, D. and Fine, M. (2005). Does Guideline Adherence for Empiric Antibiotic Therapy Reduce Mortality in Community-acquired Pneumonia?. *American Journal of Respiratory and Critical Care Medicine*, 172(6), pp.655-656.