



ANTIMICROBIAL STEWARDSHIP PROGRAM IN THE EMERGENCY DEPARTMENT: DREAMLAND OF CLINICAL PHARMACISTS?

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Article Info: Received 2 January 2021; Accepted 20 January. 2021

DOI: <https://doi.org/10.32553/jbpr.v10i1.823>

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Conflict of interest statement: No conflict of interest

Abstract:

Antibiotic prescription and antimicrobial resistance are parallel to each other. Misuse of antibiotics can increase health system costs and more importantly, morbidity and mortality, due to the emerging multi-drug resistant pathogens. Implementation of antibiotic stewardship programs in the hospital wards and intensive care units are a well-known action, however, there is an attention deficit regarding this activity in emergency department, the portal of admission to the wards. Therefore, making a specific plan with leadership of clinical pharmacists is highly desirable.

Key words: Antimicrobial resistance, Emergency department, Clinical pharmacists

Introduction

Antimicrobial resistance (AMR) is a worldwide health concern. Misuse of antibiotics for common infectious diseases leads to an increase in antimicrobial resistance. The main aims of the antimicrobial stewardship programs (ASPs) are decreasing health care systems costs, diminishing antimicrobial resistance, preventing antimicrobial side effects and improving patient outcome. Regarding the more use of broad-spectrum antimicrobial agents, the rate of multi-drug resistant (MDR) bacteria has increased. Thus, official ASPs have been established within most hospitals worldwide.

In view of the need for systematic outpatient ASPs, the US Centers for Disease Control and Prevention (CDC) published the Core Elements of Outpatient Antibiotic Stewardship in 2016. The recommendations are based on four elements: commitment, action for policy and practice, tracking and reporting and education and expertise. (1)

The positive effects of ASPs in inpatient settings are documented; however the advantages in outpatients are less noticed. (2)

The emergency department (ED) is the portal of both outpatients and those requiring admission to the hospital. Therefore, it should be considered as crucial place monitoring antibiotic prescription. Although there is a general concept that ASP is mostly applicable for hospitalized patients, we think it should be commenced from the emergency department (ED).

There are several concerns regarding the implementation of ASPs in the ED, mainly because classic ASP activities are generally created for use in the wards and ICUs and are not easily applicable within the ED. (3) The most important ASP challenges in the ED include:

- 1- The higher rate of patient turnover in the ED as compared to general wards.
- 2- The wider range of treatment protocols and decisions (discharge, admission to the ward or ICU).
- 3- The more diverse group of treating clinicians in the ED.

Clinical pharmacist's role

Clinical Pharmacists play a very important role in inpatient ASP teams through improving antibiotic

prescription. This is mentioned in CDC's Core Elements of Hospital Antibiotic Stewardship Programs. (4) Conversely, the role of clinical pharmacists in outpatient-based ASPs according to mentioned CDC guidelines is less clear. (1)

Practical education about antibiotic re-prescription and importance of knowing AMR should be actively promoted to all clinicians in order to reach the best results. This is known as "academic detailing" and is well-known in ASPs.(5) However, outpatient ASP-focused academic detailing has shown conflicting results. (6), (7), (8), (9), 10)

Clinical pharmacists can play an appreciated role in ASP activities in the ED through reducing improper antibiotic use upon discharge. (11)The presence of an educated clinical pharmacist is often considered a key component of ASPs in the ED. (12)

Several studies have demonstrated that clinical pharmacists have a positive effect on antimicrobial stewardship at the hospital through various ways, including: (13)

- 1- Daily-basis review of bacterial cultures of discharged patients from ED to evaluate the appropriateness of prescribed antibiotics in relation to susceptibility results and then to give feedback to prescribers to improve their practice.
- 2- Giving consultation to antibiotic prescribers in the ED about the risk of allergy or interaction with other patient's medications.
- 3- Continuous education to ED clinicians about common infectious diseases presenting to the ED and proper empiric antibiotic therapies. Furthermore, antibiotics dose-adjustment according to patient co morbidities and general condition such as obesity, renal or liver dysfunction, should also be done by clinical pharmacists.
- 4- Providing local antibiogram data in collaboration with other members of the ASP team in order to make antibiotic prescription more justified.
- 5- Educate patients and their attenders/family members about the proper use of antimicrobial medications.

Recently, the Society of Infectious Diseases Pharmacists released a call to action for outpatient antimicrobial stewardship and later a position statement on the essential role of pharmacists in outpatient ASP. (23), (24), (25)

Conclusion:

In conclusion, we advise to establish a practical ASP in the ED of all hospitals. Clinical pharmacists are the cornerstones of ED-related ASPs.

Acknowledgments

We would like to thank Dr. Samar Al Bartamani for her efforts and help in researching, preparing and helping to write this article.

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