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Emergency Department Antibiotic Treatment: The Best Prescription is in Fact the Optimal Prescription

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Abstract

Patients who were hospitalised and referred to the ED with an infection diagnosis were included in a retrospective analysis. Day-0 (the initial prescription from the ED) and Day-2 (the reevaluation) antibiotic treatments were graded as optimal (if fully adhering to the guidelines in terms of molecule, dose, and route of administration), adapted (if the prescribed molecule was microbiologically active but not advised as first-line treatment, or in case of a wrong dose), or inadequat) (other situations). The primary outcome was the beginning of a negative event (death, transfer to intensive care unit, or re-hospitalization). Multivariate analysis was used to evaluate the prognostic factors linked to survival without a negative event.

Keywords: Antibiotic treatment • Emergency departments • Tract infections

Introduction

A common drug class prescribed frequently in healthcare is antibiotics. The prudent use of antibiotics is of utmost importance in the era of antibiotic stewardship as a means of reducing the risk of multiresistant bacteria. Moreover, it has been demonstrated that insufficient antibiotic therapy may be linked to a worse outcome. This is especially true for infections of the lungs. According to certain studies on this subject, patients who initially received a modified antibiotic prescription had a higher survival rate and shorter stays.

Emergency departments (EDs) are critical sites for managing acute infections. Antibiotics are frequently used to treat infections in the ED setting, and their prompt administration is often essential in reducing morbidity and mortality. However, indiscriminate use of antibiotics can lead to the emergence of antibiotic-resistant bacteria, which can complicate patient care and pose a significant public health threat. In this article, we will discuss the principles of antibiotic treatment in the ED setting, with a focus on the appropriate use of antibiotics to optimize patient outcomes while minimizing the risk of antibiotic resistance.

Literature Review

Principles of antibiotic treatment in the ED setting

The primary goals of antibiotic treatment in the ED setting are to provide effective therapy against the suspected bacterial pathogen, minimize the risk of adverse drug reactions, and prevent the emergence of antibiotic resistance. To achieve these goals, several principles should guide antibiotic treatment in the ED setting. First, clinicians should have a high index of suspicion for bacterial infections when evaluating patients with signs and symptoms of infection. This includes recognizing the clinical features of common bacterial infections such as pneumonia, urinary tract infection, and skin and soft tissue infections. Early recognition of bacterial infections can facilitate prompt initiation of antibiotic therapy, which is crucial in reducing morbidity and mortality. Second, clinicians should choose antibiotics based on the most likely causative pathogens and their susceptibilities to antibiotics. This requires knowledge of local microbiology and resistance patterns. Empiric antibiotic therapy should be started promptly based on the most likely diagnosis, with adjustments made as needed once microbiologic data become available. Clinicians should consider the potential risks and benefits of each antibiotic, including the risk of adverse drug reactions and the potential for promoting antibiotic resistance [1].

Third, antibiotic treatment should be tailored to the individual patient, taking into account factors such as age, comorbidities, immunocompromised status, and renal and hepatic function. In some cases, dose adjustments may be necessary to achieve therapeutic drug concentrations while minimizing the risk of adverse drug reactions. Fourth, the duration of antibiotic treatment should be based on the underlying infection, the severity of illness, and the response to therapy. In general, antibiotics should be continued until the patient has been afebrile for at least 48 to 72 hours and other signs and symptoms of infection have resolved. Shorter courses of antibiotics may be appropriate for some infections, such as uncomplicated cystitis, while longer courses may be necessary for more severe infections, such as endocarditis. Finally, clinicians should strive to prevent the emergence of antibiotic-resistant bacteria through judicious antibiotic use. This includes avoiding the use of antibiotics when they are not indicated, using the narrowest-spectrum antibiotic that is effective against the suspected pathogen, and avoiding unnecessary combination therapy. In addition, clinicians should practice good antimicrobial stewardship by monitoring for antibiotic resistance and adjusting antibiotic use accordingly [2].

Antibiotic stewardship in the ED setting

Antibiotic stewardship is an essential component of antibiotic treatment in the ED setting. The Centres for Disease Control and Prevention (CDC) defines antibiotic stewardship as "the effort to measure and improve how antibiotics are prescribed and used by clinicians and patients to optimize the treatment of infections while reducing adverse events and decreasing the development of resistance." Antibiotic stewardship programs aim to promote the appropriate use of antibiotics by optimizing antibiotic selection, dosing, duration, and route of administration. The principles of antibiotic stewardship are particularly relevant in the ED setting, where the rapid diagnosis and treatment of infections are essential. In recent years, several initiatives have been implemented to

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promote antibiotic stewardship in the ED setting. For example, many hospitals have implemented clinical decision support tools to help guide clinicians in choosing appropriate antibiotics based on local resistance patterns. Antibiotic stewardship programs have also been developed to monitor antibiotic use and provide feedback to clinicians, with the goal of improving [3].

Prescription medications are an essential tool in modern healthcare, providing effective treatments for a wide range of medical conditions. However, prescribing medications is a complex process that requires careful consideration of many factors, including the patient's medical history, current health status, and the specific medication being prescribed. In this article, we will discuss the principles of optimal prescription, including the importance of individualized care, medication safety, and effective communication between patients and healthcare providers [4].

Individualized care

Individualized care is an essential aspect of optimal prescription. Each patient is unique, with different medical histories, genetic makeup, and lifestyles and these factors can influence how they respond to medications. Therefore, the prescribing process should be tailored to the individual patient, taking into account their medical history, current health status, and any other relevant factors. One important aspect of individualized care is taking a detailed medical history. This involves asking the patient about any previous medical conditions, allergies, or adverse reactions to medications. A thorough medical history can help identify potential drug interactions or contraindications and inform the selection of the most appropriate medication for the patient's condition. Another important aspect of individualized care is considering the patient's lifestyle and preferences. For example, some patients may prefer medications that require less frequent dosing or have fewer side effects. Others may have difficulty swallowing pills or have a history of nonadherence to medications. Taking these factors into account can help improve medication adherence and optimize patient outcomes [5].

Medication safety

Medication safety is another crucial aspect of optimal prescription. Medication errors are a significant cause of preventable harm in healthcare, and prescribing errors account for a significant proportion of these errors. Therefore, healthcare providers must take steps to ensure the safe and effective use of medications.

One important aspect of medication safety is choosing the appropriate medication and dose for the patient's condition. This requires a thorough understanding of the medication's indications, contraindications, dosing regimens, and potential side effects. Healthcare providers should also consider the patient's age, weight, and renal and hepatic function when selecting a medication and dose. Another important aspect of medication safety is monitoring for adverse drug reactions and drug interactions. Healthcare providers should be aware of the signs and symptoms of common adverse drug reactions and monitor patients for these side effects. They should also be aware of potential drug interactions between medications and adjust doses or select alternative medications as needed [6].

Discussion

Effective communication between patients and healthcare providers is critical for optimal prescription. Patients should be informed about the benefits and risks of the prescribed medication, as well as any potential side effects or drug interactions. They should also be instructed on how to take the medication properly and how to monitor for potential adverse effects. Healthcare providers should also be open to patient input and feedback. Patients may have concerns or questions about the prescribed medication, and healthcare providers should be willing to address these concerns and provide additional information or clarification as needed. Effective communication can help improve medication adherence and patient outcomes. In addition to communication between patients and healthcare providers, effective communication between healthcare providers is also essential for optimal prescription. For example, if a patient is being treated by multiple healthcare providers, each provider should be aware of the patient's medications and any potential drug interactions. They should also communicate with each other about any changes in the patient's health status or medication regimen.

Conclusion

Optimal prescription requires careful consideration of many factors, including individualized care, medication safety, and effective communication between patients and healthcare providers. By taking these factors into account, healthcare providers can ensure that patients receive the most appropriate and effective medications for their medical conditions, while minimizing the risk of adverse drug reactions or medication errors.

Acknowledgement

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Conflict of Interest

None.

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