



Original Research Article

Comparative Study of Oral Co-Amoxyclav versus Intravenous Antibiotics for the Treatment of Community Acquired Lower Respiratory Tract Infection in Tertiary Care Hospital at Muzaffarpur, Bihar

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Abstract

Objective: Present Randomized controlled trial study was undertaken to evaluate the difference in outcome of patients treated with oral co-amoxyclav, intravenous co-amoxyclav, followed by oral cephalosporins for lower respiratory tract infection.

Materials and Methods: A total of 234 patients admitted for lower respiratory tract infection were included in the study. All the patients were randomized in three study Groups. Group A included 75 patients, Group B contains 75 patients and Group C contains 68 patients, 16 patients were excluded from the study. Group A patients received co- amoxyclav 500mg/125mg orally three times a day for seven days, Group B patients received 1000mg/200mg intravenously two times a day for three days followed by orally 500mg/125mg three times a day for two days and Group C received cephalosporins 1000mg intravenously two times a day for three days followed by 500 mg orally two times a day for two days. Written consent was taken from all the patients and all the data regarding age, occupation, clinical illness, past history of treatment were noted.

Results: There were no significant differences between the all the groups in clinical outcome or mortality. However, patients randomized to oral co-amoxyclav had a significantly shorter hospital stay than the two groups given intravenous antibiotics.

Conclusion: Oral antibiotics in lower respiratory tract infection are at least as efficacious as intravenous therapy. Oral antibiotics were cheaper, easier to administer, and may lead to earlier discharge from hospital.

Keywords: Community acquired, Antibiotics, co- Amoxyclav, Cephalosporins. Lower respiratory tract infection.

Introduction

Intravenous antibiotics including cephalosporins are frequently used as first line treatment for the Lower respiratory tract infection mainly associated with Community acquired and is a

common cause of hospital admission. The increasing use of intravenous access initiated routinely on admission for giving drugs, particularly antibiotics, has increased drug costs substantially. Moreover, this route is largely

clinical choice rather than selected because of the unavailability of or the patient's inability to tolerate an oral formulation of the preferred antibiotic. This practice has been questioned, and up to 65% of such treatment may be judged inappropriate in some respects. It may also increase the duration and cost of hospitalisation.

Oral antimicrobial agents are promoted particularly for general practice and parenteral antimicrobial agents for hospital practice. If it was feasible to treat many uncomplicated infections with oral agents without compromising patient care there would be substantial benefits in terms of comfort and convenience.

We conducted an open, randomized study to see if there is a difference in outcome for patients with lower respiratory tract infections treated with the same antibiotic by mouth and intravenously or with cephalosporins.

Materials and Method

Present study was conducted in the Department of Pharmacology, S. K. Medical College, Muzaffarpur, with the help of Department of Medicine, Radiology, Microbiology during the period of January 2018 to January 2019.

A total of 234 patients admitted for lower respiratory tract infection were included in the study. All the patients were randomized in three study Groups. Group A included 75 patients, Group B contains 75 patients and Group C contains 68 patients, 16 patients were excluded from the study. Group A patients received co-amoxycylav 500mg/125mg orally three times a day for seven days, Group B patients received 1000mg/200mg intravenously two times a day for three days followed by orally 500mg/125mg three times a day for two days and Group C received cephalosporins 1000mg intravenously two times a day for three days followed by 500 mg orally two times a day for two days. Written consent was taken from all the patients and all the data regarding age, occupation, clinical illness, past history of treatment were noted.

Inclusion criteria were a clinical diagnosis of lower respiratory tract infection as defined by a new or increasing cough productive of sputum and associated with other symptoms or signs of chest infection, including shortness of breath, wheeze, chest pain, or focal or diffuse signs on chest examination or radiography, and one or more constitutional symptoms, including fever, sweating, headache, and aches and pains. immunocompromised patients, who were allergic to penicillin or cephalosporins, critically ill patients requiring admission to intensive care or requiring either inotropic or respiratory support, patients with clinical or laboratory evidence of septicemia, patients unable to tolerate oral medicines, acutely confused patients, patients with multilobar disease seen on chest radiography, and pregnant or lactating women were excluded from the study.

Cured, Partial cure, Antibiotic extended, Antibiotic changed, death, the total duration of hospital stay of Patients were noted.

Results

There were no significant differences between the all the groups in clinical outcome or mortality. However, patients randomized to oral co-amoxycylav had a significantly shorter hospital stay than the two groups given intravenous antibiotics. At least one sputum sample was received in the microbiology laboratory for culture and sensitivity test. A potential bacterial pathogen was grown in 45% cases, streptococcal pneumonia, Haemophilus influenzae, Pseudomonas aeruginosa, and Staphylococcus aureus representing 84% of the microorganisms isolated. There was no significant difference in the frequency of organisms isolated and their antibiotic sensitivities among the three groups. Chest radiographs showed acute infective changes. There was no significant difference in the frequency of acute changes among the three groups.

Discussion

Increasingly, expensive intravenous antibiotics in particular, third generation cephalosporins are being used as drug of first choice in uncomplicated respiratory tract infections with few data to suggest that they are more efficacious. This study of the outcome and economics of common antibiotic regimens evaluated current practice in our and, we believe, many other hospitals. Other than in choice of initial treatment, we did not intervene in the patient's management or the decision to discharge from hospital. Though an open design may have predisposed the study to bias, we believe this was out-weighted by the independence of the treating clinician's decision.

There are factors that may explain the earlier discharge of patients given oral antibiotics, which are largely related to the convenience of oral administration. The increasing use of the intravenous route associated with inadequate formal training for junior hospital doctors has resulted in difficulty in ensuring that drugs are given at the correct times. In this study roughly 18% of the intravenous administration of antibiotics was by junior hospital doctors and the remainder by nurses. Oral administration, which requires less time and labour, improves compliance and accuracy of the timing of administration, which may have contributed to the results.

Roughly 22% of patients randomised to oral treatment were discharged within three days compared with 8% in the intravenous groups. This demonstrates a disadvantage of intravenous treatment which confines patients to hospital for that part of their treatment. Furthermore, there is reluctance to discharge a patient immediately after he or she is switched from intravenous to oral treatment without ensuring that the patient will not relapse or be intolerant of the drug.

These results have important economic implications and support several other studies showing savings on equipment, ingredient, and labour costs by using the oral route.

Conclusion

Our results suggest that oral administration of appropriate antibiotics confers significant advantages over the intravenous route. These include earlier discharge from hospital, reduction in labour requirements for preparation and administration of the drug, and significant savings on ingredient costs. Furthermore, the trend for patients treated with oral antibiotics to have higher cure and partial cure rates at the time of discharge, fewer requirements for extension of antibiotic treatment, and a death rate comparable to that of the intravenous treatment groups is reassuring. We believe that the continued routine use of the intravenous route to administer antibiotics to patients with community acquired lower respiratory tract infections can no longer be justified.

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