Prevalence of Pneumococcal Serotypes in Adults Enrolled in a Phase 3 Trial that Evaluated the Efficacy and Safety of Oral Selithromycin (CEM-101) versus Moxifloxacin in Adults with CABP

Abstract

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Keywords: pneumonia, serotypes, CABP, clinical trials, oral antibiotics, efficacy, safety

Role of Serotypes in CABP

Introduction

S. pneumoniae is a gram-positive, facultative anaerobic bacterium that causes a variety of respiratory infections, including acute bacterial exacerbation of chronic obstructive pulmonary disease (CABP). To date, over 90 different serotypes have been identified for this organism, and a select group of serotypes, such as serotype 19A, is frequently implicated in pneumococcal disease. The rapid and widespread emergence of antibiotic resistant pathogens, such as multi-resistant S. pneumoniae, has led to a need for new antibiotics that have activity against the pneumococcus and other CAPB pathogens.

In this study, we evaluated the overall prevalence of pneumococcal serotypes in patients with CABP and correlated the identified serotypes with the clinical presentation and outcomes. Additionally, we compared the serotype distribution in patients with CABP to that observed in other studies to identify any trends or differences.

Materials and Methods

The study was a randomized, double-blind, phase 3 trial conducted in Europe, Latin America, and North and South Africa. The primary endpoint was the overall prevalence of pneumococcal serotypes among patients with CABP. Patients were randomized to receive either oral selithromycin (5 days) or oral moxifloxacin (7 days) for the treatment of CABP.

Results

The study included 123 patients with CABP, of whom 63% (86.7%) had Spn isolates from blood or sputum. Overall, non-vaccine serotypes were found in greater than 38% of patients with CABP. In European and Latin American countries, more than 60% of pneumococcal pneumonia cases were produced by PPSV23 serotypes, while in North America and South Africa, PPSV23 serotypes accounted for 38% and 32% of isolates, respectively. The most frequently identified CABP pathogen was S. pneumoniae, and a total of 35 different serotypes were isolated. The most commonly isolated serotypes were 19A, 3, 10A, and 19F.

Conclusions

The study provides valuable insights into the serotype distribution of S. pneumoniae in patients with CABP and highlights the importance of understanding the antibiotic resistance patterns of these pathogens. The results support the use of selithromycin as a treatment option for CABP, particularly in regions with high rates of PPSV23 serotypes. Further research is needed to evaluate the clinical outcomes and cost-effectiveness of selithromycin in the treatment of CABP.