Results

Evaluation of Pneumococci From the United States (USA) Pediatric Patients Isolated During the 2009 AWARE Program

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Introduction

Ceftaroline, the active form of ceftaroline fosamil, is a new broad-spectrum cephalosporin with activity against Streptococcus pneumoniae including penicillin-resistant S. pneumoniae (PRSP). Ceftaroline is a β-lactam antibiotic that binds to penicillin-binding proteins (PBP) and interferes with new bacterial cell wall synthesis. Unlike other β-lactams, the mechanism of action of ceftaroline includes binding to penicillin-binding proteins (PBPs) with reduced bacterial resistance. In vitro, approximately 4% of patients aged 2 - 14 years were penicillin-resistant (PRSP) isolates (1.2%) from patients aged 3 - 5 years. No pretreatment resistance was observed from patients aged 15 - 17 years. Penicillin resistance was not converted to ceftaroline resistance, however, the isolates were from an older age group in those studies. (Figure 5)

In general, inverse correlations between patient age and the incidences of isolates resistant to penicillin, amoxicillin-clavulanate, clindamycin, erythromycin and tetracycline were observed in patients from the following age groups (in years), 0 - 2, 20.1%; 3 - 5, 40.6%; 6 -14, 19.7%; 15 - 17, 21.4%; 18 - 64, 26.5%; and ≥ 65, 21.0% (Figure 1).

The number of isolates by body site is shown in Table 2. The most common sites were infections of the respiratory tract (85.4%), skin and skin structure (7.3%) followed by urinary tract (7.2%). (Figure 6)

The number of isolates by isolate source is shown in Table 3. The most common sites were infections of the respiratory tract (87.5%), skin and skin structure (11.3%) followed by urinary tract (1.2%). (Figure 7)

The number of isolates by isolate source is shown in Table 4. The most common sites were infections of the respiratory tract (84.7%), skin and skin structure (11.3%) followed by urinary tract (3.9%). (Figure 8)

The number of isolates by isolate source is shown in Table 5. The most common sites were infections of the respiratory tract (84.7%), skin and skin structure (11.3%) followed by urinary tract (3.9%). (Figure 9)

The number of isolates by isolate source is shown in Table 6. The most common sites were infections of the respiratory tract (84.7%), skin and skin structure (11.3%) followed by urinary tract (3.9%). (Figure 10)

The number of isolates by isolate source is shown in Table 7. The most common sites were infections of the respiratory tract (84.7%), skin and skin structure (11.3%) followed by urinary tract (3.9%). (Figure 11)

Background: Ceftaroline, the active form of ceftaroline fosamil, is a new broad-spectrum cephalosporin with activity (MIC 0.125 µg/mL) against S. pneumoniae. Ceftaroline isolated from patients aged 0 - 2 years (N = 170) and ≥ 18 years were very rare across all age groups. Approximately 2.5% of 0 - 2 year-old isolates were resistant to penicillin and new clinical breakpoints (PBPs) and interference with new bacterial cell wall synthesis. Unlike other β-lactams, the mechanism of action of ceftaroline includes binding to penicillin-binding proteins (PBPs) with reduced bacterial resistance. In vitro, approximately 4% of patients aged 2 - 14 years were penicillin-resistant (PRSP) isolates (1.2%) from patients aged 3 - 5 years. No pretreatment resistance was observed from patients aged 15 - 17 years. Penicillin resistance was not converted to ceftaroline resistance, however, the isolates were from an older age group in those studies. (Figure 5)

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