**Background:** Methicillin-resistant Staphylococcus aureus (MRSA) has emerged as a common cause of cSSSI. Cefoxitin, a second-generation cephalosporin, has been effective in treating MRSA isolates resistant to many commonly used antibiotics. Ceftaroline (CPT) is a novel parenteral cephalosporin with excellent in vitro activity against MRSA, and it has been shown to be effective in treating cSSSI requiring IV therapy received CPT (600 mg) or vancomycin (1 g) plus aztreonam (1 g) q12h for 5-14 days.

**Objectives:** To determine if Ceftaroline plus aztreonam (CPT) has similar efficacy and safety compared with vancomycin (V/A) for the treatment of cSSSI. The common pathogens most commonly isolated were S. aureus (43.3%, 234/538) and S. pyogenes (10.0%, 54/538).

**Study Design:** Adults with local and systemic evidence of cSSSI were randomized in a double-blind, parallel-group, multicenter, clinical trial to receive CPT (600 mg) IV q12h, or V/A (vancomycin 1 g plus aztreonam 1 g) q12h for 5-14 days.

**Baseline Characteristics:**

- **Characteristics:**
  - Age: mean 52.8 years (3-98 years).
  - Male: 62.7% (220/347).
  - Race: 63.6% (215/338) white, 8.5% (29/347) black, and 13.2% (46/347) Hispanic.
  - Body mass index: mean 28.8 kg/m² (16.6 to 57.3 kg/m²).

- **Microbiological response** exceeded 91% in both treatment groups.

- **Clinical failure** rates were very low in both treatment groups.

- **Safety:** Most common AEs were nausea (5.7%) in ceftaroline group and vomiting (3.1%) in V/A group. AEs were judged not related to treatment in 91.1% of patients. Discontinuations due to AEs were similar for CPT and V/A.

**Infection Types (MITT) Deidopathic cellulitis and major abscesses were the most common infection types.**

- **Deep cutaneous abscesses:** mean 15.6 days (6-29 days).
- **Necrotizing fasciitis:** mean 21.3 days (6-42 days).
- **Pyomyositis:** mean 8.1 days (1-22 days).
- **Secondary cutaneous infections:** mean 7.3 days (1-19 days).

**Conclusions:** Ceftaroline was well tolerated, consistent with the good safety profile of ceftaroline observed in previous trials. Ceftaroline was noninferior to V/A in clinical cure rate at TOC for CE and MITT populations.

**Clinical Cure** rates similar between treatment groups at TOC for CE and MITT populations. Ceftaroline was noninferior to vancomycin/aztreonam for CE and MITT populations.

**Microbiological Efficacy:** Microbiological response exceeded 91% in both treatment groups.

**Safety:** Most common AEs were nausea (5.7%) in ceftaroline group and vomiting (3.1%) in V/A group. Discontinuations due to AEs were similar for CPT and V/A. Most common AEs were nausea (5.7% vs. 8.4%), headache (5.1% vs. 3.7%) and pruritus (3.1% vs. 4.4%).

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