Table 1. Results: Vaccine Effectiveness in Reducing the Number of Subjects Reporting ≥1 AOM.

	n (C)	n	IR	FU	n/FU (per 1000)	Vaccine Effectiveness (95% CI)
PHiD-CV						
3+1 schedule	1846 (16)	1163	0.63	4407	264	14 (–10.6-33.3)
2+1 schedule	942 (17)	589	0.63	2041	289	5.0 (–25.8-28.2)
Control						
3+1 schedule	1329 (17)	892	0.67	3084	289	14 (–10.6-33.3)
2+1 schedule	1327 (17)	892	0.67	3084	289	5.0 (–25.8-28.2)

C=number of clusters; IR=incidence rate; FU=follow-up expressed in years; n/FU (per 1000)=incidence of subjects reporting ≥AOM expressed in 1000 child-years.

CABP Due to MRSA and Treatment with Ceftaroline: Experience from the CAPTURE Study

Written by Phil Vinall

There is a need for new antibiotics to treat the rising incidence of community-acquired bacterial pneumonia (CABP) and acute bacterial skin and skin structure infections (ABSSSI) caused by Gram-positive bacteria such as *Streptococcus pneumoniae* and *Staphylococcus aureus*, including the multidrug resistant (MDRSP) and methicillin-resistant (MRSA) forms of these bacteria. Ceftaroline (CPT) fosamil is an injectable novel cephalosporin antibiotic approved by the FDA to treat CABP and ABSSSI. Alena Jandourek, MD, Cerexa, Inc., Oakland, California, USA, presented a poster [Jandourek et al. ICAAC 2012 L1-300c] with results from the Clinical Assessment Program and Teflaro® Utilization Registry cohort [CAPTURE] study that showed CPT produced good clinical outcomes when used as monotherapy to treat CABP due to MRSA.

CAPTURE was a multicenter, retrospective chart review conducted to document outcomes in patients with CABP due to MRSA isolated from sputum and/or blood after CPT treatment. A successful outcome was defined as clinical improvement resulting in either a change to oral agents or end of antibacterial therapy. Men and women ≥18 years of age, diagnosed with CABP, and receiving ≥2 consecutive IV doses of CPT per the institution's standard of care between January 2011 and 2012 were included. Data collected included pathogens cultured, concomitant antibacterials, comorbid conditions, and relevant past medical history, admission, and discharge information.

Out of 70 patients enrolled with CAPB, 10 patients (mean age 68.5 years; range 52 to 85 years) had MRSA CABP. Nine patients had MRSA only and 1 patient had methicillin-sensitive *Staphylococcus aureus* (MSSA) and MRSA. All patients had comorbidities, including structural lung disease, prior pneumonia, history of smoking, cancer, congestive heart failure, gastroesophageal reflux disease, and cerebrovascular accident. Eight patients were treated with other antibacterial therapy prior to CPT. CPT was dosed at 600 mg every 12 hours for a median duration of 6.5 days (range 4 to 30); 3 patients received adjunctive antibacterial therapy. Clinical success was reported in 7 patients. The patient with MSSA and MRSA was discharged home after 9 days. Two of the 3 patients with treatment failure had end-stage cancer and both were transitioned to palliative care. The third patient was treated with multiple antibacterials, then changed to CPT, and later switched to clindamycin.

Limitations of this study include the bias associated with a retrospective cohort study and imprecise reporting of prior antimicrobial therapy dates and dates of cultures collection/results. Dr. Jandourek concluded by noting that despite the presence of significant comorbidities and severe disease, the good clinical outcomes in this study suggest that the use of CPT in MRSA CABP warrants further investigation.

One-Step 2% CHX-OH Compared to 4-Step Povidone Iodine Scrub, Rinse, Dry, and 5% PVI-OH for Preventing Central Line-Associated Bloodstream Infection

Written by Phil Vinall

The Center for Disease Control guidelines recommend that clean skin be prepared with >0.5% chlorhexidine in 70% isopropyl alcohol (CHX-OH) before invasive procedures. Similar preparation is recommended by the American Society of Anesthesiologists in preparation for a central venous catheter. However, to date there has been insufficient data to evaluate CHX-OH compared with povidone iodine in alcohol (PVI-OH).

Jean-Jacques Parienti, MD, PhD, Centre Hospitalier Universitaire de Caen, Caen, France, presented results from a late-breaking clinical trial suggesting that the use of 1-step 2% CHX-OH without scrubbing was more effective

than 4-step PVI-OH with scrubbing for preventing central venous catheter (CVC) colonization.

The source for these data was the first 215 consecutive patients from a single center who were participating in an ongoing randomized controlled trial [NCT01478153] comparing mechanical, infectious, and thrombotic complications between 3 venous access sites (subclavian, internal jugular, and femoral veins) for CVCs in patients admitted in the intensive care unit. The subjects in the analysis presented by Dr. Parienti received surgical site preparation with 10% PVI scrub, rinse, and dry followed by 5% PVI-OH (4-step) during August 2011 to January 2012 or CHX-OH without scrubbing (1-step) during January 2012 to August 2012. The endpoints were catheter-tip colonization (≥1000 CFU/mL) and central line-associated bloodstream infection (CLABSI; based on systematic peripheral blood cultures at CVC removal). Baseline characteristics were similar between the 2 periods except for a trend toward more successful first insertion attempts with CHX-OH (60%) versus PVI-OH (49%), mostly due to higher use of ultrasound guided insertions during the period with CHX-OH use.

Colonization on catheter removal was significantly lower with 1-step CHX-OH compared with 4-step PVI-OH on both univariate analysis (HR, 0.12; 95% CI, 0.04 to 0.43; p≤0.0001) and after controlling for body mass index, site, and antibiotic treatment (adjusted HR, 0.17; 95% CI, 0.05 to 0.57; p<0.005). Eleven of the 24 colonizations with PVI-OH (24/106) were Gram-positive (*Staphylococcus epidermidis* and *Staphylococcus aureus*); 13 were Gram-negative (*Pseudomonas aeruginosa*, *Escherichia coli*, *Enterobacter* spp). Of the 4 colonizations with CHX-OH, 3 were Gram-positive (all *S. epidermidis*) and 1 was fungal. The study was not powered to detect a significant difference in CLABSI, but the incidence was low in both groups (2 with PVI-OH and none with CHX-OH).

The colonization rate with PVI-OH in this study (24/106; 22.6%) was similar to that reported previously [Mimoz O et al. *Arch Intern Med* 2007; Parienti JJ et al. *JAMA* 2008] and when data from an earlier study [Parienti JJ et al. *Crit Care Med* 2004] were added to the current data, the use of CHX-OH remained independently associated with a lower risk of CVC colonization (HR, 0.19; 95% CI, 0.06 to 0.54).

Although Dr. Parienti cautioned the current study is limited in that it represents a small number of patients from a single center, observational study, he believes that 1-step 2% CHX-OH is unlikely to be inferior to 4-step PVI-OH, but it is simpler and is safe without scrubbing for skin antisepsis in ICU patients. A large randomized clinical trial is needed and will be started in France.