

# Antibiotic linezolid an effective option for treating patients with MRSA infection

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The antibiotic linezolid may be more effective than vancomycin in treating ventilated patients who develop methicillin-resistant *Staphylococcus aureus* (MRSA) pneumonia as a result of their ventilation, according to a study conducted globally by American and French researchers.

The study will be presented at the ATS 2011 International Conference in Denver.

"At the end of the treatment period in this study, linezolid offered statistically significant higher rates of clinical and microbiologic success in patients with MRSA ventilator-associated pneumonia (VAP) than weight-based [vancomycin](#) dosing, suggesting that in severely ill patients with MRSA VAP, linezolid performs well and is well tolerated," said study author Andrew F. Shorr, MD, MPH, associate director of pulmonary and [critical care medicine](#) at the Washington Hospital Center in Washington, DC.

MRSA is a [bacterial infection](#) that is highly resistant to some antibiotics. VAP is a frequent complication of ventilation, particularly in patients undergoing long-term treatment; about 15 percent of VAP cases are due to MRSA. In these patients, finding a medication that can control the infection without causing dangerous side effects can be challenging. Still considered a primary treatment for many MRSA VAP patients, vancomycin's efficacy has historically been limited and has sent clinicians on a search for more effective treatment options.

"Pneumonia contracted during hospitalization remains a major challenge in the care of critically ill patients and MRSA is a pathogen that remains linked with poor outcomes," Dr. Shorr noted.

In this study, researchers recruited 286 patients with MRSA VAP and patients were randomized to treatment with either vancomycin or linezolid. Patients in both groups were similar with respect to demographics, severity of illness and accompanying illnesses. VAP was defined based on the presence of clinical signs and symptoms of pneumonia, along with new or evolving evidence on x-ray, in patients who had undergone at least 48 hours of mechanical ventilation. The data in these patients with VAP represent a subgroup from a large trial in MRSA nosocomial pneumonia. The researchers measured both clinical success, which required eradication of the pathogen along with clinical signs of improvement, and microbiologic success, based on results obtained from cultures. Clinical success was measured at the end of treatment (EOT) – approximately 10 days after enrollment - and at the end of the study period (EOS) – approximately 28 days after enrollment. Adverse events were also measured, along with mortality rates.

"These data represent a subgroup of people enrolled in a larger clinical trial comparing these two drugs for treatment of MRSA hospital-acquired pneumonia," Dr. Shorr noted. "Patients with VAP accounted for approximately 75 percent of persons in the entire trial."

At the end of treatment, the researchers found patients treated with linezolid had a clinical success rate of 78.6 percent compared to a 65.9 percent clinical success rate in patients treated with vancomycin. At the end of the study, patients treated with linezolid had a clinical success rate of 52.1 percent while those treated with vancomycin had a clinical success rate of 43.4 percent.

The microbiological success rates with linezolid were 76.6 percent

compared to 57.7 percent with vancomycin at end of treatment, and 56.2 percent with linezolid to 47.1 percent with vancomycin at the end of the study.

Adverse events and mortality rates were similar between both groups.

"Cure rates at the time of finishing treatment were higher in persons treated with linezolid as opposed to vancomycin," Dr. Shorr said. "The difference in cure rates still favored linezolid at the end of the study, but the difference was not statistically significant. There was no difference in mortality between the two treatments and both appeared well tolerated."

Dr. Shorr said these results will allow clinicians broader options when treating [patients](#) with MRSA VAP.

"With respect to clinical practice our findings indicate that there are several choices for the treatment of MRSA VAP, including linezolid," he said. "Our data also suggest that we remain uncertain how to optimally dose vancomycin for pneumonia."

Provided by American Thoracic Society

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