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Dalbavancin

A Viewpoint by Eric S. Schweiger

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As the rates of antibiotic resistant bacteria continue to rise, the need for additional antibacterials to add to our armamentarium grows. Dalbavancin is a new medication under review by the US FDA for the treatment of complicated skin and skin structure infections. Dalbavancin, belonging to the same class as vancomycin, is a semi-synthetic glycoprotein that acts by inhibiting bacterial cell wall synthesis.

A large amount of complicated and uncomplicated skin infections are from Gram-positive bacteria, notably *Staphylococcus aureus* and *Streptococcus pyogenes*. For many years, vancomycin was our agent of last defence against these pathogens, but cases of vancomycin-resistant skin infections caused by *S. aureus* have now been reported,[1] and we have started to use daptomycin and linezolid against these pathogens. With dalbavancin, we now have an additional weapon to combat these potentially lethal bacteria.

A unique quality of dalbavancin is its long half-life, up to several days after a single dose. This enables a very convenient administration regimen requiring a total of two 30-minute infusions, spaced weekly. Until now, intravenous antibacterials have been used almost exclusively by hospitalized patients. This user friendly administration regimen could theoretically be used for outpatients, if the patient had access to an ambulatory infusion centre. This could be especially useful for patients where home compliance is a concern.

However, this long half-life also brings with it some theoretical concerns. If a patient were to experience a serious adverse event while on dalbavancin, such as Stevens-Johnson syndrome, how would the long half-life affect the adverse response? While, fortunately, serious adverse events were not encountered in its clinical testing, as the drug hits the market and is inevitably used in a much larger patient population, this is a potential concern.

An additional benefit of dalbavancin is its metabolism. It appears to be safe in patients with hepatic impairment and in patients with mild renal impairment. It also requires no dose adjustment in these situations. Furthermore, dalbavancin is unaffected by concomitant medication administration, including cytochrome P450 substrates. These attributes are likely to be very important based on the comorbidities and polypharmacy common in hospitalized patients who have serious infections and may receive dalbavancin. ▲

Reference

1. Appelbaum PC, Bozdogan B. Vancomycin resistance in *Staphylococcus aureus*. Clin Lab Med 2004 Jun; 24 (2): 381-402