Clinical Relevance of hVISA: is it a real threat?

Benjamin Howden

Austin Health, Australia

Even though vancomycin intermediate *S. aureus* (VISA) and heterogenous-VISA (hVISA) were reported 16 years ago, the optimal laboratory detection and the clinical relevance are not fully defined, especially for hVISA. While VISA isolates are uncommon, undetected hVISA is probably common in many parts of the world. hVISA and VISA often emerges *in vivo* under antibiotic selective pressure and while *in vitro* and animal studies have demonstrated reduced efficacy of vancomycin against such strains, the correlation between hVISA and outcome from clinical studies is not as well defined. hVISA and VISA have been associated with vancomycin treatment failure in high bacterial load infections (endocarditis, deep abscess and prosthetic joint infection), however the clinical impact of hVISA on vancomycin treatment outcomes for less severe infections such as superficial wound infections appears less important. It appears in fact, that hVISA is likely to be associated with persistent infection, but not necessarily with increased mortality. The *in vivo* selective pressures that generate hVISA/VISA may also promote genetic and physiological changes in the organism that lead to increased daptomycin non-susceptibility in some cases, and also to attenuated virulence in laboratory infection models. So is hVISA a real threat? The answer is yes; in some cases. There are clinical situations where the presence of hVISA are likely to contribute to vancomycin treatment failure, and in these cases, especially if hVISA is confirmed, aggressive surgical debridement combined with a change to non-glycopeptide based therapy should be considered.