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# Rapid Diagnostics identify Enterococcal Species in Blood Culture and Reduce Time to Effective Therapy

Russo A, Picciarella A, Russo R, d'Ettorre G, Ceccarelli G.  
[Time to Effective Therapy Is an Important Determinant of Survival in Bloodstream Infections Caused by Vancomycin-Resistant Enterococcus spp.](#)  
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Rapid diagnostics allow for a timely identification of *Enterococcus* species and the presence of resistance genes. They also contribute to rapid tailoring of antibiotic therapy. Effective antibiotic therapy should preferably begin within the first 48 hours from blood culture collection to increase survival in bloodstream infections (BSI) caused by vancomycin-resistant enterococci (VRE).

Enterococcal bloodstream infections (EBSI) are associated with high rates of morbidity and mortality. Treatment has become difficult because of the rise in multidrug-resistant strains. Isolation of VRE, which are predominately *E. faecium* isolates, is an independent predictor of mortality among patients with EBSI. Any delay in appropriate antibiotic therapy results in an unfavorable outcome, but the true impact of delayed therapy on mortality in patients with EBSI remains controversial.

The impact of early effective antibiotic therapy on survival was evaluated in a prospective observational trial in three hospitals in Italy between August 2016 and April 2021. Hospitalized patients with a confirmed diagnosis of hospital-acquired monomicrobial bloodstream infections caused by VRE were enrolled. Microbiological and resistance gene identifications were carried out using rapid diagnostic testing procedures.

Risk factors significantly associated with 30-day mortality included age, chronic kidney disease, oncologic disease and intensive care unit admission. In contrast, **early effective therapy was associated with survival**, and when administered within 48 h from blood culture collection, the 30-day mortality was lower than 33%. These findings highlight the importance for clinicians to start effective antibiotic therapy as early as possible, preferably within 48 hours of blood culture collection. **Rapid diagnostics play a key role.**

The study demonstrated that **time from blood culture collection to effective therapy is an independent predictor of 30-day mortality in patients with EBSI caused by VRE.** The study authors discussed that “In this scenario, **rapid diagnostic tests represent a standard-of-care in management of BSI.** Rapid identification of the *Enterococcus* species and the presence of vancomycin-resistant genes (VanA, VanB) has been shown to significantly reduce time to appropriate therapy and mortality of patients with hospital-onset EBSI.”



**“The administration of early effective antibiotic therapy within 48 h from blood culture collection was associated with 30-day mortality rates lower than 33%.”**