中文題目：血液感染抗生素選擇策略的未來趨勢－以多標的核酸檢測與多專科團隊討論為基礎的抗生素選擇策略：一病例報告

英文題目：Future Trend of Antibiotic Strategy for Bloodstream Infections – Multiplex PCR Assay- and Multidisciplinary Discussion-based Antibiotic Choosing Strategy: A Case Report

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***Introduction**:*

Bloodstream infections (BSI) are among the leading causes of morbidity and mortality in intensive care unit (ICU). Rapid and accurate identification of pathogens from blood cultures and their antibiograms facilitates prompt accurate antibiotic treatment and may improve the clinical outcomes. The BioFire® FilmArray® Blood Culture Identification 2 (BCID2) panel is a multiplex PCR assay which detects 43 targets associated with BSI within an hour. Multidisciplinary discussion (MDD) enables us to read the testing results and chose the most appropriate antibiotics accordingly. Herein, we present a case successfully treated with prompt and accurate antibiotics with this new technology and MDD.

***Case Presentation**:*

An 85-year-old woman with a history of chronic respiratory failure depending on mechanical ventilation via tracheostomy, end-stage renal disease with regular hemodialysis via a permcath at right neck, hypertension, diabetic mellitus, and dyslipidemia lived in a respiratory care ward (RCW) for many years. She was referred to our hospital for right neck permcath obstruction. Although her hemodynamics was stable in the RCW, a left femoral central venous catheter (CVC) was kept for vascular access. On arrival to our hospital, hypotension (79/42 mmHg) was noted. As catheter-related BSI was suspected, the left femoral CVC was removed. Empirical antibiotic treatment with vancomycin and ceftazidime was administered, and she was admitted to the ICU.

On the second hospital day, the blood culture yielded Gram-negative bacilli. Rapid testing with BCID2 panel revealed *Acinetobacter baumannii* complex, *Klebsiella pneumoniae* group, and *Staphylococcus spp.*, while antimicrobial resistance genes, including *OXA-48*-like and *CTX-M*, were detected. After MDD with intensivists, infectious specialists, and microbiologists, we changed the antibiotic regimen to vancomycin and intravenous colistin. The hemodynamics was stabilized soon. The right neck permcath was removed on the third hospital day. The tip culture of previously-removed left femoral CVC yielded carbapenem-resistant *P. aeruginosa* on the third hospital day. On the fourth hospital day, her blood culture yielded carbapenem resistant *A. baumannii*, *K. pneumoniae* with intermediate resistance to carbapenem-resistant, and *S. capitis*. MDD suggested keeping the antibiotic regimen. A new right neck permcath was place on the tenth hospital day. She

had an uneventful recovery and was discharged back to the RCW on the next day, with a plan to complete the antibiotic treatment course.

Conclusion*:*

Our case demonstrated the usefulness of using BCID2 panel to detect pathogens and adjusting antibiotic regimens in a timely manner with MDD support. In our case, it was about two days earlier than the traditional practice, which might delay appropriate antibiotic treatment while waiting for antibiotic-susceptibility test results. Our novel approach facilitated earlier recognition of pathogens and drug resistance, prompts shifting to appropriate antibiotics, and may improve the survival, particularly for critically ill patients. After the benefits are confirmed in further studies, we believe this approach pattern might become the standard of care for patients of BSI in the future.