

Potential usefulness of direct rapid antibiotic susceptibility testing in blood culture

¹Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea, ²Department of Laboratory Medicine, Seoul National University Hospital, Seoul, Republic of Korea, ³QuantaMatrix Inc., Seoul, Republic of Korea;

*Jeong Han Kim¹, Taek Soo Kim², Sang Hoon Song², Dong Young Kim³, Sunghoon Kwon³, Kyoung-Ho Song¹, Pyoeng Gyn Choe¹, Ji Hwan Bang¹, Eu Suk Kim¹, Sang Won Park¹, Hong Bin Kim¹, Nam Joong Kim¹, Wan Beom Park¹, and Myoung-don Oh¹

Background: Antibiotic susceptibility testing (AST) is essential for choosing an accurate treatment of bacterial infections. Current AST requires at least 48h when a first blood culture (BC) is positive on direct smear examination (DSE). Thus, initial empirical antibiotic treatment is often inadequate, increasing rates of ineffective treatment or unnecessary broad spectrum antibiotic use. Direct rapid antibiotic susceptibility testing (dRAST) based on analyzing change of single bacterial cell under antibiotic condition detects antibiotic resistance in 4-6h after unveiling of DSE results and is expected to help more accurate selection of antibiotic. **Objective:** To assess accuracy of dRAST and evaluate its potential usefulness to improve selection of adequate antibiotic in clinical practice settings. **Material and Methods:** Among patients admitted to Seoul National University Hospital from June 2015 to December 2015, 141 patients with bacteremia were included for analysis. BC bottles from these patients were processed by both current AST method and dRAST. Prescribed antibiotics were recorded. In comparison with current AST, we evaluated whether the faster availability of dRAST results could have led to the initiation of optimal treatments without error. The efficacy of antibiotic treatment was classified as non-, optimal treatment according to antibiotic susceptibility to isolate. **Results:** Among 141 patients with bacteremia, 37 received non-optimal treatments and 4 had sub-optimal treatments after DSE results were reported. After the full results were known, 66% (27/41) changed non-, sub-optimal treatment into optimal treatment. For 98% (138/141), antibiotics prescribed supposedly in accordance with dRAST results were same with antibiotics prescribed in accordance with current methods. In at least 59% (24/41) patients, adequate treatment could have been done earlier with dRAST results. Unnecessary carbapenem treatments could have been avoided in 64% (9/14) of patients receiving carbapenem. **Conclusions:** This study suggests that introduction of dRAST would increase treatment effectiveness and reduce unnecessary broad spectrum antibiotic use in early period of bacteremia.

A case of intracavitary pulmonary aspergillosis treated with instillation of voriconazole

Center for lung cancer, National cancer center¹

*Hyein Lee¹, Bin Hwangbo², Hyojae Kang³, Joohae Kim⁴, Young ju Choi⁵

Medical Treatment of symptomatic intracavitary pulmonary aspergillosis is difficult. Oral or intravenous anti-fungal agents have limited roles. Bronchial artery embolization or surgery is considered for intractable hemoptysis. Intracavitary instillation of amphotericin B through the per cutaneous catheter has been attempted for pulmonary aspergillosis with hemoptysis, showing favorable short-term outcome. We experienced a case of a 69-year-old man with chronic infection of aspergillosis in a huge right upper lobe cavity which was developed after endobronchial brachy-therapy. The patient complained chronic cough and chest pain. Treatment with systemic voriconazole and bronchoscopic intracavitary instillation of amphotericin B was failed. Fungal colonies were disappeared after treatment with instillation of voriconazole through fiberoptic bronchoscopy. This is the first case report of intracavitary aspergillosis treated with bronchoscopic instillation of voriconazole.

