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EXPLORATION OF SEPSIS-CONFIRMING MARKERS FOR HOSPITAL AUTOPSY

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Postmortem analyses of bloodstream infections are often controversial because postmortem blood cultures often become false positive due to agonal spread, postmortem translocation, and/or contamination of microorganisms. To establish the available options assisting to determine the postmortem bacterial sepsis, we evaluated the effectiveness of not only postmortem blood culture but also sepsis-associated markers including the existence of bone marrow polyhemophagocytosis (PHP) and the final antemortem procalcitonin or presepsin (PCT/PSP) levels in the patients with 38 hospital autopsies (male: female=23:15, age: 67.8 15.8 years old, range: 14 to 90). Of the 38 autopsies, sepsis was identified in 26 cadavers using conventional histopathological investigation and clinical data. Microorganisms were isolated from 27 cadavers' blood samples with 22 true bacteremia and five contaminations (sensitivity: 100%, specificity: 58.6%, p<1x10-4). PHP is a new concept of histiocytic hyperplasia of hemophagocytosis at agonal phase induced by hyper-inflammatory cytokinemia such as IL-6, IFN-γ, IL-2 and IL-8 and is preferentially complicated in hematological diseases and sepsis (Inai, K, et al, Virchows Arch, 2014). In this study, PHP was shown in 25 of 26 septic patients (sensitivity: 96.3%, specificity: 70%, p<0.0001). Furthermore, the intermediate (2+) to severe (3+) increase of antemortem PCT/PSP levels was detected in 70.6% of the septic patients. Especially the elevations within 6 days before death were significantly increased in the patients with bloodstream infections (sensitivity: 100%, specificity: 85.7%, p<0.0001). Cadavers with more than two out of the three markers represented high sensitivity and specificity for bacterial sepsis (sensitivity: 84.6%, specificity: 83.3%, p<1x10-4), suggesting that the combinations of the three inspections allowed us to well-understand the bacterial sepsis at agonal phase.

Biography

Kunihiro Inai has obtained MD degree from Fukui University and completed his PhD from Fukui University and Postdoctoral studies from Fukui University and UNC at Chapel Hill. He is an Associate Professor of Molecular Pathology in Fukui University. He has published more than 25 papers in reputed journals. He has achieved Gout foundation award (2002, 2011, and 2013), Encourage award of Hokuriku Infection Society (2009), and CyPos award (Gold medal 2016, Bronze medal 2018).

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