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CL-02-1

Invasive aspergillosis in the intensive care unit

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The incidence of invasive aspergillosis (IA) in the intensive care unit (ICU) varies and is for various reasons difficult to determine. Autopsy studies however have revealed the emergence of *Aspergillus* species as major pathogens in ICU also in patients without haematological diseases. New risk groups for IA are increasingly recognized, especially patients with chronic obstructive pulmonary disease and patients with cirrhosis. To diagnose IA in the critically ill patient is even more challenging than in patients with a haematological malignancy. Underlying lung pathologies interfere with the detection of signs of IA by high resolution CT scans. Direct examination of (respiratory tract) samples may provide the clinician valuable information in a rapid way but has a limited sensitivity. Also the diagnostic value of culture of respiratory tract specimens for the diagnosis of IA is limited due to its low sensitivity ($\pm 50\%$) and the fact that the positive predictive value of culture depends on the underlying disease or condition of the patient. Because of the limitations of conventional diagnostic tools research is directed to the identification of non-invasive markers that allow a timely diagnosis of IA. The sensitivity of serum galactomannan testing in non-neutropenic patients is rather low (50%) but recent data indicate that sensitivity can be improved significantly by performing the test on bronchoalveolar lavage fluid. Unfortunately many ICU patients do receive β -lactam antibiotics which may cause false positive test results. Few data are available on the value of β -D-glucan testing in ICU, but specificity of this test seems to be the difficult point. Standardized PCR tests for IA are becoming commercially available but many questions are still unsolved among them the optimal sample type and extraction protocol. Further studies are needed to answer the question if improved diagnosis of IA in ICU patients can improve the poor outcome.

CL-02-2

Chronic pulmonary aspergillosis

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Aspergillus species develop wide range of invasive, chronic (and saprophytic), and allergic forms of pulmonary disease. Chronic pulmonary aspergillosis (CPA) is characterized as slowly progressive inflammatory pulmonary syndrome due to *Aspergillus* spp., however, the apparent world-wide consensus of this form of disease has not been established. Though several names of this chronic form of diseases; semi invasive aspergillosis, chronic necrotizing pulmonary aspergillosis (CNPA), simple or complex aspergilloma, chronic cavitary and fibrosing pulmonary aspergillosis have been proposed, the clear distinct entities do not exist for this syndrome and these forms usually overlapped. The common characters of these forms of disease are consisted of (1) an underlying pulmonary disorders (eg, tuberculosis sequelae, bronchiectasis, COPD, cystic lesions and pulmonary fibrosis), (2) the status of low grade immunosuppression (eg, low-dose steroid administration, diabetes, collagen diseases, renal disorders or alcohol) which is related to the reduced host immunity (not non-neutropenic), and (3) not highly severe findings of angioinvasion in histopathology. Establishing a definite diagnosis of CPA requires a combination of clinical characteristic features above, serological, mycological and radiological features. However, other bacterial ornamentation in the pre-existing lesions of the lungs, low reliability of serological tests and low detecting rate of *Aspergillus* in culture influence the accurate diagnosis of CPA. Another major concern is that the efficacy of antifungals and evidences of appropriate antifungal treatment options have not been established either. Due to the large and increasing number of patients with tuberculosis sequelae, COPD and other chronic pulmonary diseases in Japan, increasing number of CPA patients will be problem. I would like to present the clinical aspects of CPA patients in Japan and also introduce our challenge to establish the new reliable diagnosing tools and treatment strategies.