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LETTER TO THE EDITOR

Improved outcome of *Pneumocystis* pneumonia by early treatment

Dear Editor,

In the August 2011 issue, Wang et al[1] conducted a retrospective study to identify predictors of mortality and to derive a *Pneumocystis jirovecii* pneumonia (PJP) mortality prediction rule. This study determined that three predictors, hypotension (systolic pressure 110 mmHg), hypoxemia (PaO_2 at room air 60 mmHg), and lymphopenia (lymphocytes 10%), were associated with mortality and stratified the patients into three groups with increasing risks for mortality, and therefore may assist the clinicians to take accurate strategies for better care and outcomes of human immunodeficiency virus (HIV)-infected patients with PJP. Many of these predictors were similar to those found in other cohorts.[2,3] It is often difficult to compare between studies, because they were usually performed in different periods and at individual centers that may have varying levels of expertise in HIV care and diverse patient populations.[2,3] The consistency of these findings suggests that perhaps primary physicians have reached a threshold in the care of HIV-infected patients with PJP and that further improvements will require discovery of new therapies or changes in other aspects of care.[2]

From Wang et al's results, these predictors were mainly related to the underlying disease of the host or to disease severity of PJP, which were not remediable at the time of diseases onset. However, the factor of early appropriate antimicrobial therapy may be implanted to improve clinical outcome. From our unpublished data of retrospective review of 43 immunocompromised patients (including 23 HIV-infected patients) showed the presence of pulmonary disease (odds ratio [OR]18.2; 95% confidence interval [95% CI] 1.2–277.3, $p = 0.037$), no HIV infection (OR 22.6, 95% CI 1.59–324.07, $p = 0.02$), and a delay of anti-PJP therapy (OR 1.1, 95% CI 1.01–1.25, $p = 0.04$), were associated with crude mortality.

In contrast, the number of patients who received chronic immunosuppressive medication or had altered immune system at risks for *Pneumocystis* pneumonia is rapidly growing. *Pneumocystis* pneumonia is an emerging infectious disease in immunocompromised hosts.[4] However, the clinical outcome of non-HIV associated PJP were worse than that of HIV-associated PJP.[5] The variable clinical courses of PJP in non-HIV infected compromised persons impeded or delayed such a clinical diagnosis. Therefore, early diagnosis rendering early treatment is essential for a favorable outcome of the affected subjects. Traditionally, the diagnosis of PJP requires microscopic examinations of clinically relevant specimens, such as sputum, bronchoalveolar fluid, or lung tissue, to identify the cysts of *P jirovecii*, because it can not be cultured. Currently, the application of molecular techniques to detect *P jirovecii* has provided new insights into the complex cell biology of this fungus and improved the diagnosis of PJP. However, the interpretation of positive PCR results remains difficult with regard to patient management, since such data may represent infections or colonization. However, most experts recommended antimicrobial treatment, if immunosuppression is ongoing.[4]

In consequence, in addition to the amendable host factors identified in HIV-infected patients, clinical alertness and early diagnosis of PJP and subsequent appropriate therapy would improve the outcome of PJP in immunocompromised population. The application of feasible diagnostic techniques is urgently essential.

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Nan-Yao Lee
Chia-Ming Chang
Ching-Chi Lee
Hsin-Chun Lee
Ming-Chi Li
Wen-Chien Ko*

Department of Internal Medicine, National Cheng Kung University Medical College and Hospital, Tainan, Taiwan

*Corresponding author. Division of Infectious Disease, Department of Internal Medicine, National Cheng Kung University Hospital, No. 138, Sheng Li Road, 704 Tainan, Taiwan.
E-mail address: winston@mail.ncku.edu.tw (W.-C. Ko)

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