

————— Memorial Lecture by Imamura Award Winner —————

STUDY OF TUBERCULOSIS IN PATIENTS WITH HUMAN IMMUNODEFICIENCY VIRUS INFECTION

Hideaki NAGAI

Abstract The research on tuberculosis (TB) comorbid with human immunodeficiency virus infections (HIV/TB), for which this prize was awarded, began with the author's experience with Japan's first HIV/TB case in 1992. In 1997, the clinical characteristics of six HIV/TB cases were presented in the *Japanese Journal of Thoracic Diseases*. In 2001, the author published a paper in *Kekkaku* on the anti-HIV antibody positive rate of TB patients. As part of a research team with the Japanese Ministry of Health, Labour and Welfare (2011–2013), the author surveyed the HIV/TB patients in the National Hospital Organization, and found a more or less unchanging mean 0.39% HIV-positive rate among TB patients. Among these TB cases, 2.1% were multidrug-resistant TB. In 2007, the results of QuantiFERON®-TB-2G (QFT-2G) HIV/TB analysis were reported in *Kekkaku*, showing the usefulness of QFT-2G in immunosuppression cases. Positive rates obtained with QFT-2G and QuantiFERON®-TB Gold (QFT-3G) declined when the peripheral blood lymphocyte count decreased, thought to be a result of QFT's whole-blood collection methods. The author further studied the usefulness of interferon-gamma release assays (IGRAs) in HIV/TB with another health ministry research team (2009–2011). Enzyme-linked immunospot assay and QFT-3G were compared, which yielded better sensitivity and fewer indeterminate cases with the former. Periodic IGRAs were performed in IGRA-positive patients. Ten such cases (2 received isoniazid) were observed for more than 3 years, but none developed TB; however, IGRA values fluctuated during the observation period. It seems highly likely that immune function recovery through antiretroviral therapy lowered the risk of developing active TB. The author further examined the therapeutic interaction of rifampicin with anti-HIV drugs, confirming the feasibility of combining efavirenz and raltegravir. These results were presented at the annual meeting of the Japanese Society for Tuberculosis in Tokyo in 2012. The author intends to continue research with the hope of reducing HIV/TB incidence and improving prognosis.

Key words: Human immunodeficiency virus, Acquired immune deficiency syndrome, Tuberculosis, Interferon-gamma release assay, Multidrug-resistant tuberculosis, Efavirenz, Raltegravir