

SYNOVIAL FLUID ADENOSINE DEAMINASE ACTIVITY TO DIAGNOSE TUBERCULOUS SEPTIC ARTHRITIS

Chingching Foocharoen¹, Chatchawal Sarntipipattana², Thanit Foocharoen³,
Ajane Mahakkanukrauh¹, Anucha Paupairoj⁴, Yaovalak Teerajetgul⁵
and Ratanavadee Nanagara¹

¹Department of Medicine, ²Department of Orthopedics, ⁴Department of Pathology, Faculty of Medicine, Khon Kaen University; ³Department of Orthopedics, Khon Kaen Hospital; ⁵Department of Clinical Chemistry, Faculty of Associated Medical Sciences, Khon Kaen University, Khon Kaen, Thailand

Abstract. There are reports of a correlation between high adenosine deaminase (ADA) levels in body fluid and tuberculosis (TB) infection, but none have evaluated synovial fluid ADA and TB arthritis. The objectives of this study were to determine the proper cut-off level for synovial fluid adenosine deaminase (SF-ADA) and the sensitivity and specificity of SF-ADA to diagnose TB arthritis. Between January 2006 and December 2007, SF-ADA were determined using the modified Giusti's method on patients over 15 years of age with clinically suspected TB arthritis or having an unknown etiology of their arthritis. Synovial fluid culture for TB was performed in all patients as a gold standard test. Forty cases were included in the study, with a female to male ratio of 1.7:1 and a mean age of 52.3±17.4 years (range, 16-80). The median duration of symptoms was 60 days. The prevalence of TB arthritis was 16.7% (6 cases) while the remaining cases were rheumatoid arthritis (8), non-TB bacterial septic arthritis (3), and miscellaneous (23). The mean SF-ADA levels in patients with TB arthritis and non-TB arthritis were 35.7±10.4 (range, 20-51) and 15.4±9 (range, 2-34) U/l, respectively. The cut-off value for the diagnosis of TB arthritis was 31 U/l, with a sensitivity of 83.3% (95%CI 35.9-99.6), a specificity of 96.7% (95%CI 82.8-99.9) and an agreement Kappa of 0.8 ($p<0.001$). SF-ADA levels higher than 31 U/l were highly correlated with a diagnosis of TB arthritis, with a high sensitivity and specificity. SF-ADA may be considered as a less invasive and time-consuming diagnostic tool for TB arthritis.

Keywords: tuberculosis, *Mycobacterium tuberculosis*, septic arthritis, tuberculous septic arthritis, adenosine deaminase, synovial fluid

Correspondence: Chingching Foocharoen, Division of Allergy-Immunology-Rheumatology, Department of Medicine, Faculty of Medicine Khon Kaen University, Khon Kaen 40002, Thailand.

Tel: 66 (0) 4336 3746

E-mail: fching@kku.ac.th