

# Circulating Interferon-Gamma Levels Are Associated with Low Body Weight in Newly Diagnosed Kenyan Non-Substance Using Tuberculosis Individuals

## Abstract

Although interferon-gamma, interleukin-10, and adiponectin are key immunopathogenesis mediators of tuberculosis, their association with clinical manifestations of early stage disease is inconclusive. We determined interferon-gamma, interleukin-10, and adiponectin levels in clinically and phenotypically well-characterised non-substance using new pulmonary tuberculosis patients (n = 13) and controls (n = 14) from Kenya. Interferon-gamma levels ( $P < 0.0001$ ) and interferon-gamma to interleukin-10 ( $P < 0.001$ ) and interferon-gamma to adiponectin ( $P = 0.027$ ) ratios were elevated in tuberculosis cases. Correlation analyses in tuberculosis cases showed associations of interferon-gamma levels with body weight ( $\rho = -0.849$ ;  $P < 0.0001$ ), body mass index ( $\rho = 0.664$ ;  $P = 0.013$ ), hip girth ( $\rho = -0.579$ ;  $P = 0.038$ ), and plateletcrit ( $\rho = 0.605$ ;  $P = 0.028$ ); interferon-gamma to interleukin-10 ratio with diastolic pressure ( $\rho = -0.729$ ;  $P = 0.005$ ); and interferon-gamma to adiponectin ratio with body weight ( $\rho = -0.560$ ;  $P = 0.047$ ), body mass index ( $\rho = -0.604$ ;  $P = 0.029$ ), and plateletcrit ( $\rho = 0.793$ ;  $P = 0.001$ ). Taken together, our results suggest mild-inflammation in early stage infection characterised by upregulation of circulating interferon-gamma production in newly infected TB patients.

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