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STUDIES ON THE CO-INFECTIVITY OF HIV AND ATYPICAL MYCOBACTERIA IN NSUKKA LOCAL GOVERNMENT AREAS OF ENUGU STATE

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The total number of tuberculosis cases in the world is increasing and the HIV epidemic is implicated for this increased incidence. Nigeria is ranked in top five countries for TB deaths worldwide. Due to the increasing level of immunocompromised individuals resulting from diseases like HIV/AIDS, other non-tuberculous Mycobacteria (NTM) are beginning to thrive and cause tuberculous infections. The information on the contribution of non-tuberculous Mycobacteria (NTM) to Mycobacterial infections in Africa including Nigeria is scarce due to limited laboratory culture for its isolation and identification. Studies on the co-infecitivity of HIV and atypical Mycobacteria in Nsukka L.G.A. were carried out. Two hundred cases (100 HIV negative and 100 HIV positive patients) were identified out of which 46.5% were male and 53.5% were female. The age ranged between 15 and 71 with mean age of 37.5 years. HIV antibodies were screened using two HIV test kits: the Determine (for preliminary test) and the Gold which was used to check for consistency. CD4+ count was carried out using cytometry (CyFlow®). Acid fast bacilli (AFB) were detected by means of sputum smear microscopy using Ziehl-Neelson staining technique. AFB positive samples were subjected to nested PCR for species identification. T-test was employed to check for statistical significance between the mean prevalence in test and control groups and CD4 count of HIV single infection and co infection with TB. Correlation analysis was also employed to check for relationship between the demographic characteristics and the distribution of the disease. A preponderance of HIV infection was observed among the age group 21-50 years (72.5%) with overall HIV prevalence of 19.4%. The highest AFB prevalence of 26.6% was observed among patients aged 21-30 years, with overall prevalence of 24%. About 79.1% of TB infection occurred at CD4 count less than 400 cells/ μ L. Molecular analysis of the samples (using nested PCR) showed 97 (78.9%) *M. tuberculosis*, 14 (11.4%) *M. bovis* and 10 (8.1%) NTM. The NTM identified was *M. avium* complex. The prevalence rate of TB/HIV co-infection was 24 (24%) out of which 14 (53.8%) were *M. tuberculosis*, 5 (20.8%) were *M. bovis* and 3 (12.5%) were NTM. The highest NTM prevalence of 66.7% was observed among patients aged 21-30 years in the HIV positive group while the highest prevalence of 42.8% was observed among 41-50 years in the HIV negative group. TB co-infection was significantly associated with CD4+ cell count ($P < 0.05$). Rural settlers and those with lower education were at higher risk to have TB co-infection with HIV (RR=1.40, $P = 0.002$) and (RR=3.17, $P = 0.01$) respectively. The data obtained in this study underscores the role of non-tuberculous AFB organisms in pulmonary tuberculosis especially in HIV patients, and is suggestive of the public health implications of DOTS administration without proper discrimination between TB and NTM. Introduction of molecular screening assays that include rapid detection of NTM infections in high burden resource limited settings like Nigeria should be a priority for strengthening the public health response.

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