

PREVALENCE OF TOXOPLASMOSIS AS COINFECTION IN IRAQI PATIENTS INFECTED WITH TUBERCULOSIS

Ekhlass N. Ali¹, Shatha Zuheir Majeed², Ashwaq A. Kadhem¹ and Alia Essam Mahmood Alubadi¹

¹Biology Department, College of Science, Mustansiriyah University, Baghdad, Iraq.

²Microbiology Department, Al-Kindy College of Medicine, University of Baghdad, Iraq

e-mail : stkn@uomustansiriyah.edu.iq

(Received 19 April 2019, Revised 20 July 2019, Accepted 12 August 2019)

ABSTRACT : The aim of the paper is to study the prevalence of *Toxoplasma* infection in he TB patients in comparison with individuals apparently healthy. A total of one hundred and twenty-eight selected TB patients have collected from the Specialized Center for Chest and Respiratory Disease in Baghdad who have the TB symptoms. They divided into three groups; newly diagnosed TB (NDTB) (58), old diagnosed patients(ODTB) (36) and multidrug resistance patients (MDRTB) (34) compare with forty-six apparently healthy individuals as a control group. The detection depend on Anti-*Toxoplasma* IgG in their serums by using *Toxoplasma* IgG enzyme-linked immunosorbent assay kit. The results of the anti-*Toxoplasma* IgG showed significant differences among the groups and control; mean±SD 15.756±3.1, 14.28±3.04, 14.14±3.27, 10.35±3.14 respectively, and there were a highly significant differences between subgroups of patients and the control group in the percentage of infection with toxoplasma P=0.000. The present study concludes that the prevalence of anti-toxoplasma IgG among TB patients was highly significant than the healthy control group, and MDRTB subgroup has a high prevalence of *Toxoplasma* infection than other subgroups due to a weak immunological status, and increase antibacterial tolerance and the deteriorate prognosis of a disease.

Key words : *Toxoplasma*, IgG, TB patients

INTRODUCTION

Tuberculosis and Toxoplasmosis are an infectious disease; Tuberculosis is a disease caused by bacteria called *Mycobacterium tuberculosis* which attack the lungs, and may damage other parts of the body which affects nearly one-third of the world's population (Mathema B *et al*, 2015) and Toxoplasmosis is a common zoonosis disease caused by a single-celled parasite called *Toxoplasma gondii* which affects 30% of the population worldwide (Dubey J P and Jones J L, 2018).

The relationship between the different infectious diseases considers as one of the common problems in developing countries which is known as co-infection (Xin-Xu Li1 and Xiao-Nong Zhou, 2013 and Zhao Y J *et al*, 2017).

The role of coinfections may make the patients more immuno-competent or susceptible to another pathogen; increased level of clinical suspicion for co-infections with tuberculosis with many diseases as Cryptococcal (Singh U B *et al*, 2017 and Fang W *et al*, 2017), HIV (Sardar P *et al*, 2009 and Bell LC K, Noursadeghi M, 2017), *Toxoplasma* (Kang Y H *et al*, 2016 and Zhao Y J *et al*,

2017) and other diseases thereby indicating that tuberculosis could be the reason for immunosuppression and induce occurrence of the opportunistic infections.

Toxoplasmosis and Tuberculosis are a global problem Which afflicts adequate probability of the people in the world and these two diseases may present in a latent state (Pontarelli A1 *et al*, 2018; Mueller-Hermelink M1 *et al*, 2018 and Egorov A I *et al*, 2018) these diseases can be transformed from the latent state into an effective state depending on many factors, and the most important factor is the health of the patient. Many studies investigate the causal agent of diseases in isolation state while we are in contact with the environment microbes so in a whole time we are vulnerable to coinfections of different pathogens causes the aim of this study was to investigate the prevalence of *Toxoplasma* in TB patients.

MATERIALS AND METHODS

Study samples

Patients group were recruited at the Specialized Center for Chest and Respiratory Disease in Baghdad between July 2016 to February 2017, One hundred and twenty-eight male and female patients were collected and