

EFFECT OF HUMAN LEUKOCYTE ANTIGEN HLA-DRB1 ON DEVELOPMENT OF BAGHDAD SORE IN PATIENTS

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ABSTRACT :*Leishmania tropica* is a species of flagellate parasites that infects humans and the cause of the disease cutaneous leishmaniasis, which is the most common form of leishmaniasis. It is one of the major parasites, which have high prevalence than other parasites in Iraq. The aim was to investigate the role of HLA alleles in susceptibility to cutaneous leishmaniasis infection in Baghdad in a sample of Iraqi patients. Cross-sectional study (thirty Iraqi Arab Muslims patients with *Leishmania tropica* infection and thirty Iraqi Arab Muslims healthy persons) were participated in this study. Patients were consulted Department of Dermatology in Medical city Teaching hospital and AL-Yarmook Teaching hospital for the period between March 2014 till May 2015. HLA-DRB1 was created by SSOP method. There were obvious increased in frequency of HLA-DRB1*07:0101 and *08:0101 in leishmaniasis patients, *P*-values = 0.0001, Odds Ratio = 13.14 and Confidence interval (CI) = 3.60 - 47.96 and for *08:0101 allele *P*-values = 0.0077 with OR = 9.33 and CI= 1.80 - 48.24.

Key words : HLA-DRB1, major histocompatibility complex, *Leishmania tropica*, leishmaniasis.

INTRODUCTION

Leishmania tropica is a species of flagellate parasites that infects humans and cause the disease leishmaniasis (Aoun and Bouratbine, 2014), which is a form of cutaneous disease and the most common form that affecting humans (James *et al*, 2006). It is spread by the bite of sand fly insect (Louis *et al*, 2013). The virulence factors of *Leishmania* are cysteine proteases (Mahmoudzadeh-Niknam and McKerrow, 2004). Cutaneous leishmaniasis severity depends on replication ability of the parasite and inducing of immunologic responses. Genes are the most important factors for modulation host immune response (Castellucci *et al*, 2014).

Number of researches have cleared the relationship between cutaneous leishmaniasis and polymorphisms at class I of Human Leukocyte Antigen (HLA) locus A, B, and C, class II (DR/DQ) and class III (Tumor Necrosis Factor/Lymphotoxin- α) (TNF) / (LTA) (Cabrera *et al*, 1995). The susceptibility and resistance to pathogens may cause infectious disease, detected by environmental factors, pathogen and genetic factors of the host (Prahald *et al*, 2001).

Major Histocompatibility Complex (MHC) or (HLA), is the most important studied of genetic systems because of its effects in resistance to pathogens, autoimmunity

and self-compatibility or non (Langamba Angom Longjam, 2017).

T-helper cells effect immune response of anti-*Leishmania*, it produce cytokines, provoke B cells to convert to mature antibody, increase differentiation responses of cytotoxic lymphocytes (CD8⁺) and increase the capacity responses of immunity (Kara *et al*, 2014). Cells of CD8⁺ contribute in production of Interferon-gamma (IFN- γ) and response differentiation of Type 1 T helper (Th1) (Da Silva Santos and Brodskyn, 2014). *Leishmania* use different mechanisms to avoid immunity including changes in the expression of interleukin 10 (IL-10) (Schwarz *et al*, 2013). In the early infection, promastigotes of *Leishmania major* target macrophages, which in turn cause cellular response in addition to signals expression, that induce parasite to survive and multiply in these cells (Alessandra *et al*, 2014).

The aim of this study was to investigate if there was possible relation of HLA genes with *Leishmania tropica* in a sample of Iraqi patients.

MATERIALS AND METHODS

The study was a cross sectional comparative. Approval of medical morals board was taken from the scientific unit of AL-Kindy College of Medicine. Thirty Iraqi Arab Muslims patients were consulted at