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INTERLEUKIN-32(IL-32) GENE EXPRESSION IN IRAQI CHRONIC HEPATITIS B VIRUS PATIENTS

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ABSTRACT : Hepatitis B infection is a prominent infectious disease caused by hepatitis B virus (HBV), which infect liver and is considered as the main cause of liver cirrhosis, fibrosis and liver cancer worldwide. A pro-inflammatory cytokine Interleukin-32 is believed to have a role in chronic HBV infections. Since its role in CHB infections is remain unclear, this study was done to detect IL-32 gene expression in CHB patients in order to identify its exact role. A total number of 110 blood samples were collected from Gastroenterology and Hepatology Teaching Hospital in Baghdad Medical City from CHB patients for both males and females with different age groups according to the research ethics form then sent to Central Public Health Laboratory (CPHL), National AIDS and Viral Hepatitis center, Baghdad, Iraq between October 2020 and March 2021. The immunological part for evaluation of HBsAg (HB surface antigen) and HBcAb IgG (HB core antibody IgG) was accomplished by Enzyme Linked Immunosorbent Assay technique (ELISA) while, the molecular part of this study was achieved by reverse transcription- quantitative PCR (RT-qPCR) to detect the gene expression of Interleukin-32 in Chronic HBV patients. The results showed a decrease in IL-32 expression in most of the studied samples of Iraqi chronic HBV patients (69.73%), while only (30.26%) of them are showed increase in IL-32 expression. Statistical analysis ensured that differences among age groups of both gender are not significant.

Key words : Hepatitis B, Interleukin-32, gene expression, RT-qPCR, ELISA.

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INTRODUCTION

Viral hepatitis B is a widespread infection generated by Hepatitis B Virus (HBV), a small partially double-stranded DNA virus with envelope, which belongs to Hepadnaviridae that infect liver leading to many acute and chronic liver diseases (Kim *et al*, 2016). Studies showed that HBV is transfer by blood and body fluids as well as it has viability outside the body (Koroglu *et al*, 2018). HBV infection is considered as a global public health problem, about 2 billion individuals are exposed to the virus around the world; 240 million are chronic carriers according to the WHO (World Health Organization) estimations (Xu *et al*, 2019). HBV patients may develop Symptoms such as fatigue, loss of appetite, nausea, pain, vomiting, and jaundice, but sometimes the disease may remain asymptomatic for years then become a chronic, and potentially transmit it to other people by contact without knowledge (Koroglu *et al*, 2018; Xu *et al*, 2019; Terrault *et al*, 2018). About 15%-40% of chronic HBV infected-patients may develop complications like cirrhosis, liver failure, and liver cancer that are the main causes of HBV-related death as estimated by WHO about to 1.34 million deaths per year due to HBV complications (Lim *et al*, 2020; WHO, 2018). Several risk factors-related to HBV infection are blood product transfusion, drug abuse, surgical operations, dental surgeries, dialysis patients, tattoo and/or body piercing with nonsterile techniques, recipients of organ transplantation, travelers to the endemic countries, healthcare workers, household and sexual contact with patients (Akselrod *et al*, 2014; Corona *et al*, 1991; Singhal *et al*, 2009; Qadi *et al*, 2004; Omar *et al*, 2011). However, clinical symptoms spectrum of HBV infection is varies in both acute and chronic infection. Short term infection with HBV referred as acute infection that last for 6 months, while lifelong infection with HBV referred as a chronic infection. Studies estimated that 95% of HBV-infected adult they get full recovery within the first 6 months of the infection (during acute infection) because of the HBV Clearance process that carried out

in inflammatory diseases such as asthma, metabolic disorders, neurological illnesses, experimental colitis, and HIV infection (Hong *et al*, 2017). However, our findings may provide an important information about the mechanism of non-cytopathic viral clearance in the body and could be useful for developing new therapeutic options for the control of hepatitis B infections depending upon immunological aspects as well as the exact mechanism regulate HBV inhibition by this cytokine may be it will be the focus of future studies as we believe that IL-32 has an effective role in CHB.

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