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EFFECT OF *ENTAMOEBA HISTOLYTICA* ON HIPCIDIN AND SOME BIOCHEMICAL PARAMETERS IN BLOOD

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ABSTRACT : This study was conducted in Samarra, city on patients with amoebic dysentery and diarrhea for the period (1/12/ 2017 – 30/8/2018). The study included the examination of (600) stool samples of patients with diarrhea who were coming to the general Samarra hospital and medical clinics and took 30 samples with amoebic dysentery and 30 samples with diarrhea and anather 30 healthy samples as control. The results showed that 205 of tested samples were infected with amoebic dysentery (34.16%). Also, we have been studying and examining some of biochemical parameters of blood in patients with amoebic dysentery and diarrhea and for control group, these parameters are percentage of Ferritin, Hepsidin and Iron in serum and total iron band capacity (TIBC) and the results showed significant decrease (P≤0.05) in percentage of Ferritin, Iron and TIBC in patients with amoebic dysentery in compared with control group, while itwas increased (P≤0.05) in Hepcidin percentage.

Key words : *Entamoeba histolytica*, hepcidine, ferritin, iron and total iron binding capacity.

INTRODUCTION

Amoeba dysentery *Entamoeba histolytica* is considers to be one of the most important intestinal protozoa, which infect human and caused disease known as Amoebic dysentery or amoebiasis. Human is the natural host for this parasite (Eichinger, 1997). This parasite causes intestinal mucosa, often enters the bloodstream and the infection develops to the secondary sites, such as the liver (Thibeaux *et al*, 2013). It also causes colonic dysentery and liver abscesses in infected people. This parasite faces drastic changes in the concentration of iron during its invation of the host, with relatively low levels in the intestinal cavity and then relatively high levels in the blood and liver. The liver contains especially iron sources and therefore the ability of the parasite to use these sources may be related to its survival in the liver and the causing liver abscesses (Hernandez-Cuevas *et al*, 2014). The iron element acts as a cofactor of the alcohol dehydrogenase 2 (EhADH2) of the parasite *Entamoeba histolytica*. This enzyme is assentially dual-function, acting as enzyme : Alcohol dehydrogenase (ADH), which drows hydrogen atoms from alcohol molecules and also acts as an enzme Aldehyde dehydrogenase (ALDH), which drows hydrogen atoms from aldehyde molecules in glycolysis pathway for *Entamoeba histolytica* (Espinosa *et al*, 2009). *Entamoeba histolytica* lacks mitochondria; so it gets the energy needed to cary out vital activities by fermenting the glucose. In the last stage of the glucose fermentation pathway, Acetyl-coA is converted to Ethanol by activating the Alcohol dehydrogenase enzymes (ADH) and aldehyde dehydrogenase enzymes (ALDH). Therfore, the enzymes (EhADH2) is necessary for the sarvival of this parasite (Espinosa *et al*, 2004). Many studies suggested that iron is important to parasite growth and enzyme activation ;and also confirmed on the importance of iron in the pathogenesis of the parasite and also suggested using iron drawing as a chemotherapy and depending on the immune response of mammals; iron isolation is the first line of defenese. So, several studies have shown the effect of iron on enzymatic activity of two enzymes (ADH) and (ALDH) and on survival of feeding phase for parasite. The purpose of reducing or with drawing iron is for using it as atreatment for future (Espinosa *et al*, 2004; Espinosa *et al*, 2009). Amoibic dysentery is widespread in areas with poor sanitary and living conditions, especially in tropical areas (Ravdin, 2005). Most pathogenic and fatal infections are found in Africa, Asia and central south of America (Petri, 2006).

MATERIALS AND METHODS

Samples were collected in period early December 2017 to end July 2018, whene 600 samples were collected for both males and femals as folows : 30 infected samples by parasite, 30 Samples with diarrhea and 30 healthy samples. To confirm the enfection, stool samples were taken in plastic bottole for parasites with diarrhea and