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Assessment of Liver Function Tests in Patients Effected by *H. pylori* in Port Sudan City

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Abstract
Background:*H. pylori is atype of bacterium of gram negative bacillus little pet air, that colonizes the stomach and duodenal mucosa.Mucositis is associated with the peptic ulcer in the stomach, duodenum and stomach cancer.*
Objective:*The aim of this study is to assess the serum levels of liver function test in H. pylori patients.*
Materials and method:*This is a cross sectional study, conducted in Port Sudan, Red Sea State, Sudan, during the period from July to October 2019. Include one hundred samples, 50 H.pylori infected patients were selected as study group and 50 were healthy individuals used as control group. The data collected by questionnaire and blood specimens, the blood is used to measure the liver functions. The obtained data is analyzed by the using of SPSS, version 19.0.*
Result: *The results showed that there was statistically significant increase of the mean of ALP and total protein in case group when compared with control group with p value (<0.05). Also there was statistically insignificant increase of the mean of albumin, globulin, AST and ALT in case group when compared with control group, with p. value (> 0.05).*
A Positive correlation was revealed between ALP and duration of H. pylori shown in figure3.1. And total protein with duration of H. pylori.
Conclusion:*The study concluded that the elevation of liver function test among H. pylori infection patient, there is positive correlation between liver function test and duration of H. pylori.*
Keywords: *Liver Function Tests, H. pylori Infection.*

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I. Introduction

Infectionwith *H. pylori* is highly prevalent worldwide. *Helicobacter pylori* is pathogenic bacterium colonizingin the mucosal surface of the humans to mach.; up to90% of the adult populations in developing countriesare affected by the bacteria [(1)]. Consequences of theinfection range from a mild chronic gastritis to peptic ulcer and gastric cancers [(2)]. Besides gastric problems, association of *H. pylori* infection with other diseases such as cardiovascular, pulmonary, hematologic, ophthalmologic, dermatologic, neurologic, and hepatobiliary diseases are shown by several recent studies [(3)]. Liver is one of the organs that, according to some evidences, may be affected by *H. pylori* infection; however, the exact effects of the infection on the liver and the underlying mechanisms are still unclear [(4)]. Some studies, such as chronic cholecystitis, primary sclerosing cholangitis, primary biliary cirrhosis, and even hepatocellular carcinoma [(5)]. Animal studies have shown that *H. pylori* can exist in the liver and gallbladder cells [(6)] and can cause mild to moderate the multifocal hepatic fibrosis [(7)]. Regarding human studies, an association between *H. pylori* presence in the liver and disease progression in those with viral chronic hepatitis and cirrhosis is reported [(8)]. Furthermore, associations between *H. pylori* infection and cirrhosis in patients with hepatitis C virus [(9)], and between hypertransaminasemia and infection with Cag-A positive *H. pylori* in patients with peptic ulcer disease are presented [(10)]. Due to the uncertainty about the exact impacts of *H. pylori* on the liver and lack of studies in this regard, we investigated if

liver enzymes are changed by *H. pylori* eradication in patients referring with hypertransaminasemia of unexplained origin and concomitant *H. pylori* infection [11].

II. Materials And Methods

2.1 Study design: This is a cross sectional study.

2.2 Study area and duration: The study was conducted in Port Sudan, Red Sea State, Sudan.During the period from July to October 2019.

2.4 Study population and sample size: This study was conducted in patient with gastritis. One hundred participants were enrolled in this study, 50 H.pylori infected patients were selected as study group and 50 were healthy individuals used as control group.

2.5 Data collection tools: Direct questionnaire was used to obtain the clinical data for each participant, and blood specimens was collected to measure the liver functions.

2.6 Instrument: Liver function tests was measured using chemistry analyzer Bio-system- A25.

2.7 Data analysis: Data was analyzed using Statistical Package for Social Science Software (SPSS), version 19.0.

2.8 Ethical considerations: This study was approved by the research committee, faculty of graduate studies and scientific research, ALzaeimALazhari University. Informed consent was obtained from each participant.

III. Results

This is a cross sectional descriptive study was conducted in Port Sudan, Red Sea state, Sudan. During the period from July to October 2019. And one hundred participates were enrolled in this study, a 50 patient diagnosed with *H. pylori* as case study, and 50 healthy person as control.

Our results showed that there was statistically significant increase of the mean of ALP in case group when compared with control group (106±88.84 and 72.62±23.83) with p value (0.012). Also there was statistically significant increase of the mean of total protein in case group when compared with control group (7.45±.0.87 and 7.04±1.18) with P value (0.049) that illustrated in table 3.1.

Also there was statistically insignificant increase of the mean of albumin, globulin, AST and ALT in case group when compared with control group, with p. value (> 0.05), that illustrated in table 3.1.

A Positive correlation was revealed between ALP and duration of H. pylori shown in figure3.1. And total protein with duration of H. pylori shown in figure3.2.

Table 3.1: Show the mean and standard deviation of total protein, albumin, globulin, AST, ALT and ALP in case and in control group.

Parameters	Control Group No=50 Mean ±Sd	Case Group No=50 Mean ±Sd	P. value
T. Protein	7.04±1.18	7.45±0.87	0.049
Albumin	4.08±0.46	4.16±0.46	0.420
Globulin	3.09±0.406	3.28±0.6	0.070
AST	21.42± 4.6	23.94±8.22	0.125
ALT	18.18±8.03	19.74±10.67	0.410
ALP	72.62±23.83	106±88.84	0.012

T-test was used to calculate P value.

P value less than 0.05 considered significant.

Mean ± SD.

Minimum-Maximum between the brackets.

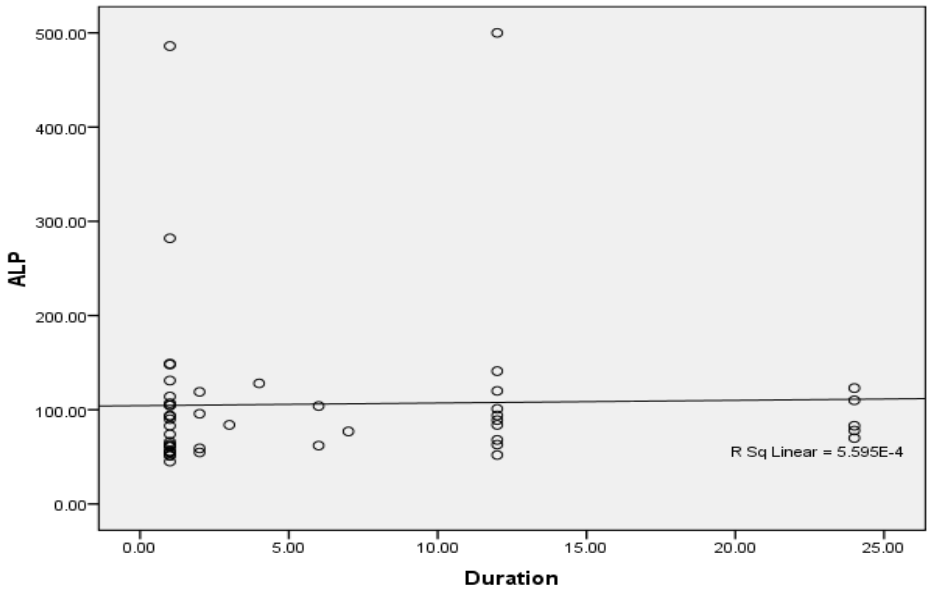

Figure 3.1: Correlation between ALP and duration.

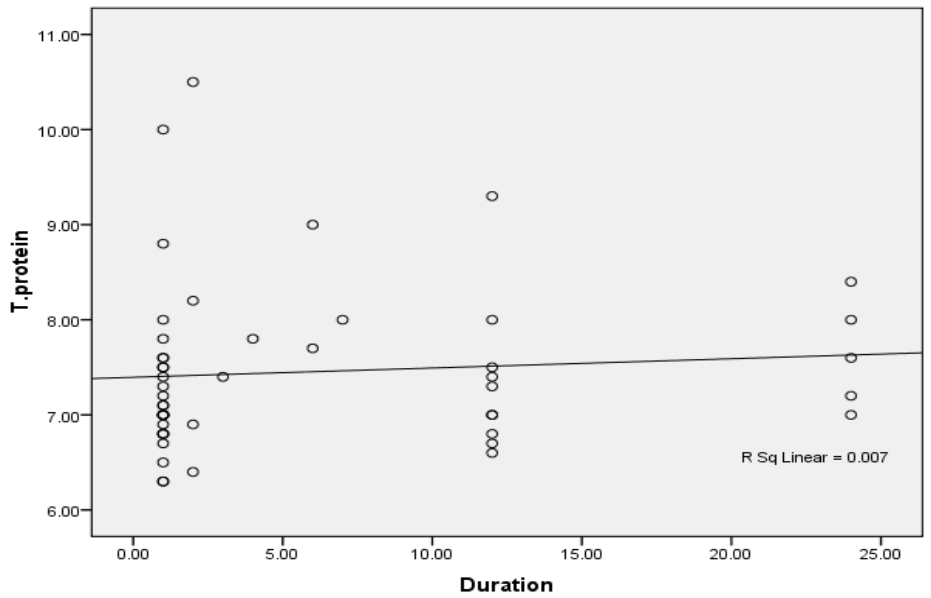

Figure 3.2: Correlation between T. protein and duration.

IV. Discussion:

This study was performed to assess the liver function tests (total protein, albumin, AST, ALT, and ALP) in *H. pylori* infected patient. The importance of liver function in *H. pylori* patient is great of interest because the liver is complex functions include metabolism of carbohydrates, lipids, proteins, and bilirubin; detoxification of harmful substances and storage of essential compound.

The result of the present study revealed moderate elevated levels of total protein and ALP in case group when compared with control group. Also there was mild increase of albumin, globulin, ASTand ALT in case group when compared with control group. This study agree with study done by (Abdulhamid, A. and Venkat, D., 2018) (12), which showed increase in AST and ALT level. The study done by (Salehi, H., et al. 2014) (13) which is reported the serum levels of AST and ALT were significantly decreased after eradication regimen of H. pylori. Additionally the study disagree with (Crampton, J.R., et al. 1989) (14) they showed decrease in total protein and albumin levels.

Also this study agree with (Madden, R.J., et al. 1957) (15) which is showed increase in ALP level. This imparity may be to the environmental factor, nutritional status and sample size difference.

V. Conclusion:

The study concluded that the elevation of liver function test among *H. pylori* infection patient, there is positive correlation between liver function test and duration of *H. pylori*. Our study suggest that *H. pylori* infection could be a risk factor for chronic liver diseases.

Competing interests:
Authors have declared that no competing interests exist.

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