SUMMARY AND CONCLUSION

The present study was performed on 50 children categorized as follows:

* Fifteen children with chronic liver disease 11 males and 4 females with their age ranging from 6 months to 13 years. According to histopathological findings in the liver biopsy this group included patients with glycogen storage disease, chronic persistent hepatitis, bilharzial portal fibrosis, posthepatitic cirrhosis, mixed type (chronic active hepatitis plus bilharzial portal fibrosis) and a case of intrahepatic biliary cirrhosis and congenital hepatic fibrosis.
* Fifteen children with hepatitis E virus infection, 9 males and 6 females with their age ranging from 6 to 13 years.
* Twenty apparently healthy children as reference group, 10 males and 10 females with their age ranging from 5 to 13 years.

A few children were from Benha city, but most were residents of nearby rural communities.

Two serum samples were obtained from every patient with a 6 months interval between the first and the second samples.

In addition to full history and clinical examination, all children were subjected to the following investigations: liver function tests, hepatitis B surface antigen, histopathological examination of liver biopsy (for chronic

liver disease group), and quantitative measurement of serum TNF-α by enzyme linked immunosorbent assay.

As regards the liver function tests, most of them showed a significant difference between the reference group and the chronic liver disease and HEV +ve groups. They are markedly affected in the chronic liver disease group than in HEV +ve group.

Serum AST level showed a higher rate of increase (43.6%) in the chronic liver disease group than the HEV + ve group (21.5%) at $P< 0.03$.

The chronic liver disease group, also showed a higher rate of increase in serum ALT level (53.2%) than the HEV+ve group (23.5%) at $P< 0.03$. However, the alkaline phosphatase level showed no significant rate of change between the two groups.

Total serum bilirubin and serum direct bilirubin showed no significant difference between the reference group and the two pathological groups. They also showed no significant rate of change between the two groups.

Considering serum albumin level, the chronic liver disease group showed a significantly larger rate of decrease in the serum albumin (-7.3%) than the HEV+ ve group (-4.2%) at $P< 0.01$.

The chronic liver disease group aslo showed a larger rate of decrease in A/G ratio (-12.5%) than the HEV+ve group (- 5.7%) at $P< 0.0002$.

At $p<0.02$ the chronic liver disease group showed a significant higher rate of increase (4.3%) in the prothrombin time than the HEV +ve group (2.8%). Whereas at $P< 0.04$, the chronic liver disease group showed a significant larger rate of decrease in the prothrombin time (-8.8%) than the HEV +ve group (-6.1%).

Considering the serum TNF-α level, there was a significant negative correlation between age and serum TNF- α in the reference group at $P< 0.05$ and correlation coefficient (r) = - 0.489. However, there was no correlation between serum TNF-α level and sex in the reference group.

There was a significant difference in serum TNF-α level between the reference group and the first samples of chronic liver disease and hepatitis E virus + ve (HEV + ve) groups at $P< 0.001$, but with no significant difference in TNF-α level between the first samples of chronic liver disease and HEV + ve groups.

Serum TNF-α level in the second samples also showed no significant difference between the chronic liver disease and HEV + ve groups.

There was a significant differenc in serum TNF-α level between the first and second samples at $P< 0.0001$ in the chronic liver disease group and at $P< 0.02$ in HEV + ve group.

There was a higher incidence of elvated TNF-α levels in the chronic liver disease group (93.4 % in the first samples and 100% in the second

damples) than in the HEV + ve group (80% in the first samples and 86.7% in the second samples).

As regards the rate of increase of serum TNF-α, the chronic liver disease group showed a significantly higher rate of increase in serum TNF-α level (35.5%) than the HEV+Ve group at $P<0.004$.

There was no significant correlation between serum TNF-α level and the histopathological findings in liver biopsy, however, patients with bilharzial portal fibrosis followed by patients with liver cirrhosis showed remarkably elevated serum TNF-α levels.

It was noted that serum TNF-α levels were higher in patients with chronic active hepatitis than in patients with chronic persistent hepatitis, and this denoted that increased TNF-α production is related to the activity of hepatitis.

Also, it was noted that, increased TNF-α production is a common phenomenon in patients with HBs Ag +Ve serum as well as in patients with HBs Ag - Ve serum. This finding indicates that TNF-α production does not depend on the etiology of hepatitis but reflects the activity of hepatitis.

Elevated serum TNF-α levels were also recorded in patients with HEV infection, with tendency of much more elevation by time, and this might suggest hat hepatitis E virus infection might progress to chronic liver disease. When considering the chronic liver disease group as a whole no significant correlation could be proved between serum TNF-α level and liver function

tests, but within the subgroups of chronic liver disease specially bilharzial portal fibrosis group and mixed group (bilharzial portal fibrosis and chronic active hepatitis) a positive correlation was found between serum TNF-α level and liver function tests specially transaminases, serum albumin and A/G ratio, prothrombin time and prothrombin concentration.

When trying to determine the cut off value of serum TNF-α for the diagnosis of chronic liver disease, we considered that serum TNF-α range between 188.8-200 pg/ml is the cut off value of serum TNF-α. The optimum sensitivity (75%) and specificity (78.6%) of this serum test were achieved at this range.

The introduction of each new laboratory parameter for disease should be coupled with questions about the efficiency, reliability, specificity and sensitivity of the measurement. In addition, it remains to be seen whether there is a real need for this new index in view of the quality of the available alternative indices.

Serum TNF-α claims this special field of application because of the simplicity of the measurement, its reliability and prognostic value, in addition to its considerable sensitivity (75%) and specificity (78.6%).

Our present study showed increased serum TNF-α levels, in chronic liver disease, but it is not certain that the production of TNF-α in local inflammatory areas is also increased. Studies on the production of TNF-α in the liver may provide further insight on the pathogenesis of chronic liver disease.