SUMMARY

The diagnostic problem of acute and chronic hepatitis had not been resolved. The sensitivity as well as specificity of different chemical and biochemical assessments are highly variable.

The potential importance of HCV as a cause of liver disease in Egypt has been noticed. Rate of 11-22% seropositivity were reported among volunteer blood donors in different studies started from 1989 till now. So the different studies for evaluation of the sensitivity of different clinical chemical assessment of such disease carry special national importance.

Glutathione S transferases are a family of multifunctional detoxifying enzymes that catalyses the conjugation of glutathione with large number of compounds bearing an electrophilic center, including carcinogens, and also bind a variety of non-substrate ligands. The Glutathione S transferases are widely distributed in the mammalian species and can be grouped into 3 classes on the basis of subunit composition: alpha α (basic), mu μ (neutral) & pi π (acidic). The liver is an organ possessing abundant GST-α (3 mg/g wet weight).

Glutathione S-transferase alpha (GST-α) is a cytosolic enzyme of a short plasma half-life of 2 hours. Since no clinical conditions other than hepatic diseases are known to cause raised plasma

concentration of GST-α, plasma measurements of this enzyme may therefore provide a fast, specific, and sensitive index of acute hepatocellular damage. Its measurement might provide an earlier and much more sensitive indicator of acute hepatocellular damage, as well as of its resolution in different clinical conditions than the aminotransferase.

This present work designed to compare the sensitivity of GST total and GST-α in comparison with other clinical chemical assessment in common practice (ALT, AST, total and direct bilirubin, alkaline phosphatase and γGT.

In this present work 118 cases (collected from Benha University Blood Bank) were examined for total GST and its α isoenzyme and other liver functions: total and direct bilirubin, AST, S.G.P.T., Al.P., γG.T.. The cases were divided into 4 groups:

- **Reference group:** Apparently healthy 20 subjects aging from 30 to 57 years old, 12 of them are males and 8 are females.
- **Study group I:** HCV Ab +ve by ELISA and PCR +ve of total number of 20 cases aging from 23 to 57 years old, 14 of them are males and 6 are females.
- **Study group II:** HCV Ab +ve by ELISA and not tested by PCR of total number of 80 cases aging from 21 to 59 years old, 47 of them are males and 33 are females.

- **Study group III:** HCV Ab +ve by ELISA and PCR –ve of total number of 18 cases aging from 32 to 59 years old, 11 of them are males and 7 are females.

The results of the present work show that the comparison of total and direct biliburin, AST, ALT, Al.P., γ G.T., α G.S.T. and T.G.S.T. between study group I and the reference group show high statistical significant difference. A similar statistical significant values could be detected when comparing the same parameters between study group II and the reference group. While the comparison of the studied parameters between study group III and the reference group show statistical significant difference in ALT and Al.P. whereas there was high statistical significant difference in the remaining studied parameters: Total and direct bilirubin, AST, γ G.T., α G.S.T. and T.G.S.T.

Also, the results of this present work illustrates that there was +ve significant correlation between both total and alpha GST in comparison to both AST and ALT in all groups of the work.

Accordingly this present study showed that total and αGST can be a good marker of liver tissue damage, this could be demonstrated through the +ve correlation to AST and ALT.

To evaluate the clinical value of TGST and its alpha isoenzyme in evaluation of liver diseases, in our study the sensitivity of TGST and αGST in study group I were 80% and 75%

respectively while it was 90% and 70% for AST and ALT in the same group. Also the sensitivity was 66.25% and 65% for TGST and αGST in comparison to 72.5% and 63.75 for AST and ALT respectively in study group II. While in study group III the sensitivity was 50% for both TGST and αGST and it was 38.8% and 22.2% for AST and ALT respectively.

Conclusion:

The sensitivity of TGST and αGST did not show marked superiority on AST and ALT. On the contrary they show improved sensitivity in some groups.

This present work can describe TGST and αGST as a good marker for liver damage but not better than AST and ALT. Further researches with better patient selection may explore more the analytical value of the enzyme.