

Evaluation of Some Trace Elements in Biological Samples of Egyptian Viral Hepatitis Patients under Nutrition Therapy

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Abstract : Hepatitis is an inflammation of the liver. The condition can be self-limiting or can progress to fibrosis, cirrhosis or liver cancer. Disease caused by the hepatitis virus, the virus can cause hepatitis infection, ranging in severity from a mild illness lasting a few weeks to a serious, lifelong illness. A growing body of evidence indicates that many trace elements play important roles in a number of carcinogenic processes that proceed with various mechanisms. To examine the status of trace elements during the development of hepatic carcinoma, we determined the iron, copper, zinc and selenium levels in some biological samples of patients at different stages of viral hepatic disease. We observed significant changes in the iron, copper, zinc and selenium levels in the biological samples of patients hepatocellular carcinoma, relative to those of healthy controls. The mean hair, nail, RBC, serum and whole blood copper levels in patients with hepatitis virus were significantly higher than that of the control group. In contrast the mean iron, zinc, and selenium levels in patients having hepatitis virus were significantly lower than those of the control group. On the basis of this study, we identified the impact of natural supplements to improve the treatment of viral liver damage, using the level of some trace elements such as, iron, copper, zinc and selenium, which might serve as biomarkers for increases survival and reduces disease progression. Most of the elements revealed diverse and random distribution in the samples of the donor groups. The correlation study pointed out significant disparities in the mutual relationships among the trace elements in the patients and controls. Principal component analysis and cluster analysis of the element data manifested diverse apportionment of the selected elements in the scalp hair, nail and blood components of the patients compared with the healthy counterparts.

Keywords : hepatitis, hair, nail, blood components, trace element, nutrition therapy, multivariate analysis, correlation, ICP-MS

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