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Copper concentrations in Egyptian infants with cholestasis: A single center study

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Background: Biliary excretion is the major elimination route of Copper (Cu). Intrahepatic and extrahepatic cholestasis can interfere with biliary excretion, producing Cu retention in the liver. Hepatic Cu accumulation is cytotoxic and results in fibrosis in hepatic tissues.

Aim: To evaluate utilization of serum Cu and ceruloplasmin as predictors of hepatic Cu levels in infants with cholestasis.

Subjects & Methods: The present study included 41 cholestatic infants, their aged ranged between 1 and 7 months; 26 (63.5%) were males. All cases showed elevated liver enzymes with normal synthetic functions. Histopathology showed picture of neonatal hepatitis in 58.5% infants and extra-hepatic biliary atresia (EHBA) in 41.5% infants. Eleven healthy infants served as controls, their ages ranged between 3-18 months. Serum Cu and ceruloplasmin were done for both cases and controls. Hepatic Cu content were assessed in cholestatic infants.

Results: Cholestatic infants had significantly higher levels of serum Cu and ceruloplasmin than controls and their hepatic Cu concentration was significantly higher than literature control. Serum Cu showed positive correlation with serum ceruloplasmin and tissue Cu. Also, serum ceruloplasmin showed positive correlation with tissue Cu. Intrahepatic cholestasis and EHBA showed no significant difference regarding all Cu indices.

Conclusion: Serum and hepatic Cu concentrations were markedly elevated in patients with cholestasis and positively correlated with each other and with serum ceruloplasmin. Serum Cu and ceruloplasmin can be used in clinical practice as a simple, cheap and non-invasive test to predict hepatic Cu contents which is measured by a sophisticated, costly and invasive technique.

Biography

Nehal El Koofy has completed her MD in Pediatrics from Cairo University, Egypt. She is a Professor in Pediatrics at Cairo University. She is a Member in Pediatric Hepatology Unit and assists in the nutrition unit activities. She had a Clinical Nutrition Diploma from the American University, Cairo. She is also a Member in the Council of Clinical Nutrition Egyptian Fellowship and has published more than 20 papers in reputed journals.

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