

Ceruloplasmin Levels of Patients with Different Liver Diseases

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Abstract Text

Background: The decrease of ceruloplasmin is one of the main characters for the diagnosis of Wilson disease (WD). Clinical experiences proved that the level of ceruloplasmin can also decline in non-WD liver diseases such as liver cirrhosis and liver failure. The purpose of this study was to evaluate serum ceruloplasmin levels in different etiologies of liver diseases.

Methods: 1077 patients were enrolled in the Department of Hepatology, the First Hospital of Jilin University, from January 2012 to January 2018. Ceruloplasmin was detected using a nephelometric method by the Department of Clinical Laboratory of our hospital. The normal value was 0.2-0.6 g/L. And then the decline of serum ceruloplasmin levels in different liver diseases were analyzed.

Results: The serum ceruloplasmin concentration in 97.6% of WD patients was lower than 0.2 g/L, and 88.1% of them were below 0.1 g/L. In non-WD group, ceruloplasmin was lower than 0.2 g/L in 24.3% of the patients, of which 0.2% were below 0.1 g/L. The proportion of patients with a decrease in serum ceruloplasmin at the line of 0.2 g/L was 69.9% for liver failure, 47.6% for nonalcoholic fatty liver disease, 40.0% for viral hepatitis cirrhosis, 33.3% for chronic viral hepatitis, 24.8% for unknown cirrhosis, 22.5% for alcoholic liver disease, 21.3% for unexplained liver damage, 15.1% for drug-induced liver injury, 13.0% for primary liver cancer, 4.5% for acute viral hepatitis, and 2.8% for autoimmune liver disease. In addition, there are some other liver diseases with a decrease of serum ceruloplasmin, including cavernous transformation of the portal vein, congenital hepatic fibrosis, hereditary hemorrhagic telangiectasia, Gilbert syndrome, and Dubin-Johnson syndrome.

Conclusion: Ceruloplasmin is commonly dramatic decline in Wilson disease, and mild change could occur in other liver diseases. For these patients, we should pay attention to identification.

The distribution of serum ceruloplasmin (CP) levels in patients with different liver diseases

Groups	Number (Male- %)	CP (g/L) Mean ± SD	CP (g/L) ranges				
			0.00~0.04 N (%)	0.05~0.09 N (%)	0.10~0.14 N (%)	0.15~0.19 N (%)	0.20~ N (%)
Wilson disease	42 (22,52.4)	0.06±0.05	26 (61.9)	11 (26.2)	1 (2.4)	3 (7.1)	1 (2.4)
Liver failure	73 (36,49.3)	0.18±0.06	-	1 (1.4)	25 (34.2)	25 (34.2)	22 (30.1)
Acute viral hepatitis	44 (29,65.9)	0.27±0.05	-	-	-	2 (4.5)	42 (95.5)
Chronic viral hepatitis	75 (52,69.3)	0.23±0.05	-	-	-	25 (33.3)	50 (66.7)
Viral hepatitis cirrhosis	85 (52,61.2)	0.21±0.06	-	1 (1.2)	8 (9.4)	25 (29.4)	51 (60)
Primary liver cancer	46 (32,69.6)	0.28±0.08	-	-	-	5 (13.0)	40 (87.0)
Nonalcoholic fatty liver disease	21 (15,71.4)	0.20±0.04	-	-	-	10 (47.6)	11 (52.4)
Alcoholic liver disease	71 (66,93.0)	0.25±0.06	-	-	1 (1.4)	15 (21.1)	55 (77.5)
Drug-induced liver injury	205 (66,32.2)	0.28±0.16	-	-	2 (1.0)	29 (14.1)	174 (84.9)
Autoimmune liver disease	72 (10,13.9)	0.35±0.29	-	-	1 (1.4)	1 (1.4)	70 (97.2)
Unexplained liver damage	160 (69,43.1)	0.26±0.09	-	-	3 (1.9)	31 (19.4)	126 (78.8)
Unknown cirrhosis	125(49,39.2)	0.24±0.06	-	-	7 (5.6)	24 (19.2)	94 (75.2)
Other liver diseases	58(29,50.0)	0.30±0.12	-	-	4 (6.9)	5 (8.6)	49 (84.5)

Disclosures

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