

# 무증상 피검자에서 가혈액검사 이상의 진단적 접근

## Diagnostic Approach to Abnormal Liver Tests in Apparently Healthy Subjects

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### Abstract

Blood tests such as aminotransferases are indicators of liver cell injury not liver function, so it would be more appropriate to call them liver tests instead of liver function tests. Liver tests should be interpreted in a clinical context, and follow-up tests are often helpful to assess liver diseases. Abnormal liver tests in apparently healthy individuals can be categorized into four types: isolated elevation of serum bilirubin; isolated elevation of serum alkaline phosphatase (ALP); hepatocellular injury; and intrahepatic cholestasis. Mild unconjugated hyperbilirubinemia without any other test results is frequently suggestive of Gilbert syndrome, which needs no specific therapy, but the possibility of hemolysis should be ruled out. An isolated elevation of ALP can be due to non-hepatic causes such as normal rapid growth, pregnancy, or bone diseases. The source of the elevated ALP can be considered to be of hepatic origin if gamma-glutamyl transpeptidase (GGT) increases simultaneously. GGT also increases after chronic ethanol ingestion. A significant elevation of ALP also occurs in infiltrative lesions of lymphoma or leukemia. Up to 25% of asymptomatic testees show a mild elevation of aminotransferases. A substantial proportion of them have parenchymal liver diseases such as fatty liver, chronic hepatitis, or early cirrhosis. A history of exposure to hepatotoxins, physical examination, and tests for viral markers are helpful. If ALT is normal, the increased AST is highly likely to be of muscle origin. Serum ALP and GGT increase mainly in intrahepatic cholestasis, and early stage of primary biliary cirrhosis or drug-induced cholestasis should be considered.

**Keywords :** Liver tests; Liver functions tests; Apparently healthy subjects; Transaminases; Alkaline phosphatase

핵심용어: ; ; ; ;

GOT/GPT

(liver function tests,

LFT)

AST/ALT(aspartate aminotransferase/alanine aminotransferase)

, 가

가 가 . AST/ALT  
가 .

(liver tests)

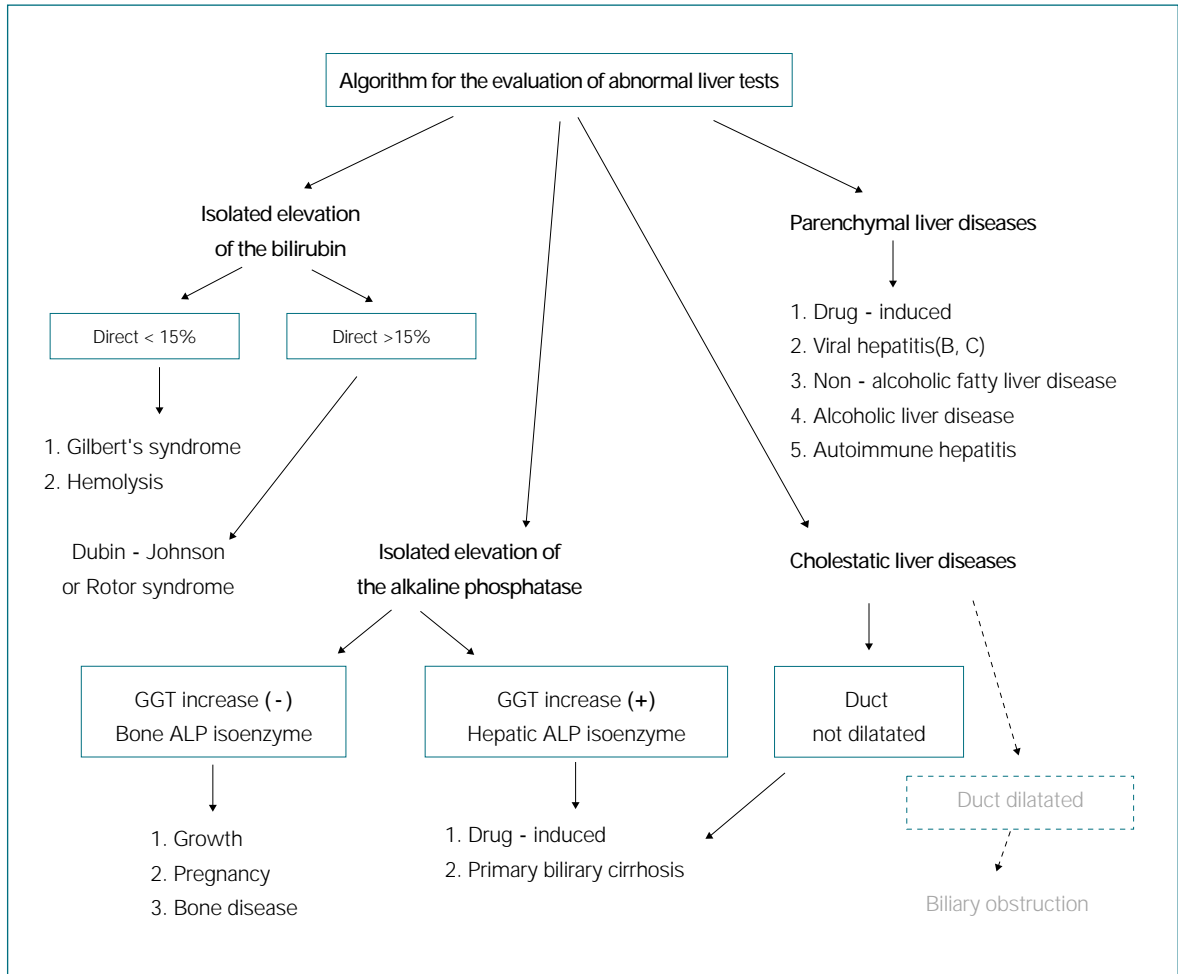
(1),

가  
(blood tests for the detection of  
liver diseases)

4.3/0.4mg/dL, AST/ALT 23/31U/L, ALP 98IU/L(  
 (alkaline phosphatase, ALP), ( - glu- <119IU/L), GGT 23U/L( <50U/L),  
 tanyl transpeptidase, GGT) , / 7.9/4.1g/dL, P - time 100%,  
 (clearance) , 187,000/mm<sup>3</sup>, 14.5g/dL  
 (synthetic function) , .  
 (prothrombin time, P - time) . 가 , 4.3mg/dL  
 가  
 가  
 (reticuloendothelial system)  
 (unconjugated form)  
 , 15 ~ 25% . ,  
 (1, 2). bilirubin - UDP - glucuronosyl trans-  
 가 ferase(BUGT)  
 가 가 (conjugated form)  
 , .  
 .  
 diazo  
 .  
 ,  
 가 가 가  
 (2, 3). 4 Gilbert . BUGT 가  
 가 ( 1), ( 10 ~ 30%),  
 가 , ALP 가 , , , ,  
 (parenchymal liver disease),  
 (cholestatic liver disease) (4). 가 . 4.0 ~ 6.0mg/dL  
 가 , 가  
 , 7%  
 (1).  
 1. 가 가  
 20 / 가 . (48

400 ) pheno- HBsAg, anti - HBs anti - HCV  
 barbital ( 60mg 5 ) .  
 가 , .  
 가 가  
 .  
 가 (hemolysis) , 2. 가  
 (reticulocyte)가 가 17 가 /  
 . 1.0/0.4mg/dL, AST/ALT 23/31U/L,  
 ALP 198IU/L ( <119IU/L), GGT 34U/L,  
 가 Dubin - / 7.9/4.1g/dL, P - time 100%,  
 Jonhson 가 . 187,000/mm<sup>3</sup>, 14.5g/dL .  
 Gilbert , ALP가 가  
 가 가 .  
 , , , ,  
 , , 2.0~5.0mg/dL (intestine) ALP가 가  
 가 . ALP  
 (the (parenchymal liver disease) (biliary  
 black liver). 가 tract) 가 .  
 , 가  
 . coproporphyrin 가 ,  
 1 80% 가 , ALP가 가  
 . 가 ALP 가  
 가 가  
 , 가 Gilbert ,  
 가 가 ALP가 가 .  
 . B C  
 , 95% ALP 가 . 가  
 (5), ALP가 가  
 가가 .  
 GGT 가  
 , ALP . ALP  
 (body mass index) , GGT가 가 가

가	( 1), ALP	(isoenzyme)	1.
	가 .	AST/ALT GGT	
가			
가			
		가	
	GGT	가	
가			
	(primary biliary cirrhosis)		
	ALP 가	가 ,	가
	(6).	(89%),	3 가 .
40 ~ 60 ,		(anti - mitochondrial	, ALT
antibody)가		가	가 AST
	ALP	가	, AST/ALT가 가
가			( , ), (
가			, ), .
		가 , , , , ,	HBsAg, anti -
3.			HBs, anti - HCV
35	가 /		
1.0/0.4mg/dL, AST/ALT 93/121U/L, ALP 123IU/L,			
GGT 64U/L, / 7.9/4.1g/dL, P - time		가	
100%, 187,000/mm <sup>3</sup> , 14.5g/dL		AST/ALT 가 300 U/L 가	
		, GGT	MCV(mean corpuscular
	ALP GGT 가	volume) 가가	
AST/ALT가 가		AST/ALT (ratio)가 ,	
가		2 , AST가	
가 ( 1). ALP GGT		가 ,	pyridoxal phosphate



1.

(4). AST , , AST/ALT 가 , , ALT가 AST/ALT 가 1~2 가 (7). AST/ALT 가 ALT AST가 가 ALT가 가 1 가 P - time 가 , .

가 , .

가 , 가 , - 1  
(alpha - 1 antitrypsin deficiency),  
가 . (hemochromatosis)

가 HBsAg anti - HCV가 4.  
38 가

32 가 ,  
/ 2.4/1.3mg/dL, ALP  
가 , 가 670IU/L, GGT 118U/L, AST/ALT 98/187U/L,  
3,800/mm<sup>3</sup>, 11.8g/dL, 113,000/  
mm<sup>3</sup> . HBsAg anti - HCV  
가

10~25% 6

B C  
9~18% AST/ALT ALP  
(2). 가 가 , GGT 가  
HBsAg anti - HCV가 B ( 1).  
C 가 , ALP가 가  
가 가 (bile acid) 가 ,  
가 ALP  
3~6 가 가  
가 ,  
가  
( ), isoniazid,  
ketoconazole (8), (intrahepa-  
tic cholestasis)

, ALP 가 , 가 가 가 .  
 . 가 60 , AST  
 (autoimmune cholangitis) 가 .  
 (antinuclear antibody)가 .  
 (9, 10). 가 가 ,  
 AST  
 가 10 가 가 .  
 , ALP가 가 가 .  
 . 가  
 NK - T .  
 , . 2)알부민 과P - time  
 P - time  
 가 가 .  
 P - time  
 가 가 20  
 .  
 (anabolic steroid), , ery- , P - time 가  
 thromycin, chlorpromazine, carbamazepine .  
 , propylthiouracil 가 ,  
 (11). 가 , 가 ,  
 가 . P -  
 . time 가  
 가 , wafarine  
 K가  
 , K P - time  
 .  
 ,  
 (12). AST, ALP, 3)간혈액검사가 정상이면 간질환은 없는가?  
 GGT 가 B

가 (HBeAg , ,  
HBV DNA가 ), AST/ALT , ,  
. 25~45 AST/ALT가 .  
가 3~4 가 (13). B 가  
(inactive  
HBsAg carrier) AST/ALT가 .  
, 가 1~2  
. HBsAg 가 , (ALP)  
HBsAg anti - HBs (routine 가 , ,  
test) . 가 가  
C AST/ALT가 Gilbert 가  
, 가 ,  
. C 가  
AST/ALT가 Dubin - Johnson ,  
. ALP  
. anti - HCV 가 ,  
, . GGT가  
가 가 ,  
가 가 ,  
가 . ALP GGT  
가 가 AST/ALT가 가  
가 , , ,  
. , B C ,  
. AST/ALT 가  
, 2 , 1  
, 1~2 가 .  
ALP GGT  
가 가 가 .



가

B



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