

# Liver enzymes as surrogate markers of hepatitis C histopathology – Avoiding the liver biopsy needle?

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## ARTICLE

Assy N, Minuk GY. Serum aspartate but not alanine aminotransferase levels help to predict the histological features of chronic hepatitis C viral infections in adults. *The American Journal of Gastroenterology* 2000;95:1545-50.

## ARTICLE SUMMARY

A retrospective cohort study of 79 patients with chronic hepatitis C was performed to assess the predictive nature of various variables (age, sex, route of transmission, extent of steatosis, alcohol consumption and serum aminotransferase values), with the underlying hepatic histopathology. The newly modified Knodell histological activity index by Desmet et al (1), which separately scores the inflammation from the fibrosis on the liver biopsy, was used. Using step-wise multivariate logistic regression, it was discovered that serum aspartate aminotransferase (AST) values had a predictive relationship with overall histological activity ( $r=0.62$ ), portal inflammation ( $r=0.58$ ), piecemeal necrosis ( $r=0.61$ ) and extent of hepatic fibrosis ( $r=0.64$ ). Serum AST values correctly predicted the inflammatory grade in 63 of 79 (80%) patients, and the fibrosis stage in 50 of 79

(63%) patients – higher than the predictive values of ALT. Serum alanine aminotransferase (ALT) values did not correlate with the degree of histological inflammation ( $r=0.39$ ) but did correlate mildly with the extent of hepatic fibrosis ( $r=0.51$ ). There were no significant correlations of the other variables with histological inflammation or fibrosis.

## COMMENTARY

Although Menghini (2) described the ‘one second’ liver biopsy over 40 years ago, the liver biopsy has maintained its position in modern medicine as the cornerstone to understanding liver diseases. In patients with hepatitis C, the liver biopsy can provide important information regarding the extent and severity of the hepatitis, the likelihood of progression to cirrhosis and the potential response to medical therapy (3,4). However, the acquisition of this valuable information occurs at the expense of performing an invasive procedure with inherent risks and complications, including death (5-7). Thus, the search for noninvasive, surrogate markers that can predict the underlying histopathology is enticing.

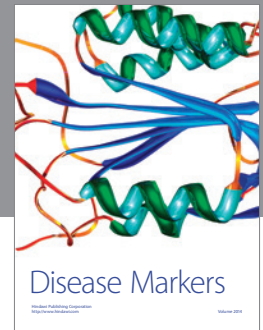
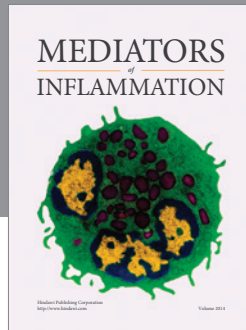
Many surrogate markers have been investigated, of which the aminotransferases are the best studied. Along with AST, the AST to ALT ratio has been suggested as a predictor of histopathology by many studies; however, other

studies have produced conflicting results (8-11). The present study has shed further light in this area, because AST, and not ALT, levels seem to correlate positively with hepatic inflammation and fibrosis using Desmet's modified histological activity index scale. Nevertheless, despite the liver biopsy technique remaining essentially unchanged over the years, the hepatitis histopathology classifications

have undergone many revisions. The current grading and staging classification system described by Batts and Ludwig (12) in 1995 has now become the standard. Surrogate marker studies with this new classification system are still pending. Thus, the pursuit of a noninvasive and predictive marker for liver histology will continue as we try to avoid the liver biopsy needle for our patients.

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