

The usefulness of shear wave velocity in managing nonalcoholic steatohepatitis

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A research team from Japan investigated whether a noninvasive measurement of tissue strain has a potential usefulness for management of nonalcoholic steatohepatitis (NASH). The results showed that shear wave velocity could be reproducibly measured at multiple sites and showed positive correlations with histological fibrous stages and a serum fibrous marker suggesting great potential for clarifying NASH stage and fibrosing process.

Nonalcoholic steatohepatitis (NASH) is manifestation of [metabolic syndrome](#) in the liver and is a pandemic over the globe especially in the developed countries, based on a high calorie diet and sedentary life style. As in the other types of [chronic hepatitis](#), collagen fibers continuously accumulate in the liver through the course of NASH toward cirrhosis and hepatocellular carcinoma development. Histological evaluation is a current gold standard for quantification of the fiber deposition.

A tiny biopsy specimen, however, leads to considerable variability and is practically difficult to obtain repeatedly from multiple sites. Several surrogate markers have been developed for evaluation of fiber accumulation in a noninvasive way. Unfortunately, however, so far no methodology can satisfy both specificity for the liver and applicability for multiple sites.

A research article to be published on June 21, 2010 in the [World Journal of Gastroenterology](#) addresses this question. A research team led by Takeshi Suda, from Department of Gastroenterology and Hepatology,

Graduate School of Medical and Dental Sciences, Niigata University, investigated the efficacy of shear wave velocity (SWV) measurement in the evaluation of NASH pathophysiology using ACUSON S2000 ultrasound system.

This research revealed significant positive correlation between SWV and the histological fibrous stages and suggested the possibility to distinguish mild fibrosis from severe fibrosis or [cirrhosis](#) with substantial accuracy. Furthermore, the correlations of SWV with biochemical markers such as hyaluronic acid or albumin were presented. This is the first report suggesting that SWV can be reproducibly measured in NASH and varies through the liver.

Due to the non-invasive and easily accessible nature of SWV measurement, this technology makes it possible to conduct a longitudinal evaluation of liver rigidity at multiple sites of the liver in a large cohort. The actual longitudinal evaluation in a larger NAFLD population may prove not only useful for fibrous staging of NASH but also for the process of fiber accumulation and value as a prognostic indicator.

More information: Osaki A, Kubota T, Suda T, Igarashi M, Nagasaki K, Tsuchiya A, Yano M, Tamura Y, Takamura M, Kawai H, Yamagiwa S, Kikuchi T, Nomoto M, Aoyagi Y. Shear wave velocity is a useful marker for managing nonalcoholic steatohepatitis. *World J Gastroenterol* 2010; 16(23): 2918-2925.

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