






Original article—liver, pancreas, and biliary tract

Effects of Liver Biopsy Sample Length and Number of Readings on Sampling Variability in Nonalcoholic Fatty Liver Disease

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Background & Aims

Liver biopsy is required to diagnose nonalcoholic steatohepatitis (NASH) in patients with suspected non-alcoholic fatty liver disease (NAFLD); recent studies suggested significant sampling variability. Using percutaneous liver biopsy samples from patients with suspected NAFLD, we examined the relationship between histological yield and length of biopsies, number of cores and number of independent readings.

Methods

Three cores of liver tissue were collected, by percutaneous liver biopsy, from each of 50 patients suspected to have NAFLD. The diagnostic yield (percent with definite NASH) and other histological findings from 2 independent, blinded examinations of 2 cores and from all 3 cores combined were assessed.

Results

Steatosis, lobular inflammation and fibrosis scores were significantly higher when 3 samples were analyzed, compared with 2. However, between groups, there were no significant differences in hepatocyte ballooning, proportion with an NAFLD activity score ≥ 4 or proportion with definite NASH (57% vs 61%, $P = .3$). The length of the biopsy sample correlated with percentage of patients found to have definite NASH (29%, 46%, 56%, and 65% in biopsies measuring < 10 mm, 10–14 mm, 15–24 mm, and ≥ 25 mm, respectively; $P < .0001$). When biopsy specimens were read twice by the same pathologist, the composite of the 2 independent readings yielded a significantly higher yield for several histological features, compared with the first reading.

Conclusions

There is a significant relationship between histological yield and sample length and number of independent readings of liver biopsy samples. More studies are needed to optimize the strategy for liver biopsy, to more effectively assess histology in patients with suspected NAFLD.



Abbreviations used in this paper

NAFLD, nonalcoholic fatty liver disease; NAS, nonalcoholic fatty liver disease activity score; NASH, nonalcoholic steatohepatitis

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