Coffee Linked to Lower Risk for Severe Liver Fibrosis in NAFLD

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Nov 22, 2012

BOSTON, Massachusetts — In a study of patients with nonalcoholic fatty liver disease (NAFLD), coffee consumption was associated with a lower risk for advanced liver fibrosis in people with less insulin resistance, but not in those with more insulin resistance.

The potential beneficial effects of coffee for patients with chronic liver disease are becoming more apparent, said Kiran Bambha, MD, assistant professor of medicine in the division of gastroenterology and hepatology at the University of Colorado Denver in Aurora.

She presented the results of a cross-sectional study here at The Liver Meeting 2012: American Association for the Study of Liver Diseases 63rd Annual Meeting.

Dr. Bambha said that previous work has shown the beneficial effects of coffee on a variety of chronic health conditions, including type 2 diabetes and hepatic fibrosis in NAFLD. Therefore, she and her colleagues studied how the possible interaction between coffee consumption and insulin resistance (IR) related to advanced fibrosis (greater than stage 2) in patients with biopsy-proven NAFLD.

The 782 participants 18 years and older were prospectively enrolled from 2004 to 2008 in the Nonalcoholic Steatohepatitis (NASH) Clinical Research Network. NAFLD histology was centrally reviewed and was scored at entry and within 6 months of screening.

Coffee consumption was documented and IR was assessed with the homeostasis model of assessment-IR (HOMA-IR).

Mean age of the participants was 48 years, 38% were men, and 84% were white. Median body mass index was 33.5 kg/m² (range, 29.7 - 38.3 kg/m²). On histology, 79% were found to have definite or probable NASH; of these, 75% had fibrosis of stage 2 or lower and 25% had fibrosis greater than stage 2 (7.5% had cirrhosis). Median HOMA-IR score was 4.3 and 24% (n = 189) of participants had diabetes.

For coffee consumption, 29% of the participants drank 0 cups/day, 28% drank less than 1 cup/day, 15% drank fewer than 2 cups/day, and 28% drank at least 2 cups/day. The use of alcohol and tobacco positively correlated with higher coffee consumption ($P_{trend} < .001$ for both).

Multivariate logistic regression testing showed a significant inverse relation between coffee consumption and the risk for severe fibrosis depending on the degree of IR (interaction $P = .01$). This relation held for participants with less IR but not for the ones with more IR.

Coffee intake was inversely correlated with advanced fibrosis (greater than stage 2) in participants with a HOMA-IR score below 4.0 (odds ratio [OR], 0.64; 95% confidence interval [CI], 0.46 - 0.88; $P = .007$) but not in those with a score of 4.0 or higher (OR, 1.06; 95% CI, 0.87 - 1.28; $P = .6$). There was no significant association between coffee intake and severity of steatosis, lobular inflammation, ballooning, or definite NASH histology.

Dr. Bambha said the strengths of the study were the large size, the overall prospective design, and the high quality of histologic and other data, including data on coffee consumption.

Limitations include a lack of information on the type of coffee consumed (caffeinated or decaffeinated), the cutoff of consumption at more than 5 cups/day, possible errors resulting from self-reports and recall of coffee intake, and the fact that there were no data on changes in consumption over time.

"Our data contribute to the body of literature that suggests a potential beneficial effect of coffee for patients with chronic liver disease," Dr. Bambha concluded. "What are needed are longitudinal well-designed studies to delve into the association between coffee and hepatic fibrosis, and to determine whether coffee could be a useful adjunct for patients with fatty liver," she explained.

Mark Thursz, MBBS, MD, professor of hepatology in the Department of Medicine at Imperial College, London, United Kingdom,

and secretary general of the European Association for the Study of the Liver, who was not involved in the study, told *Medscape Medical News* that associations between coffee and liver disease have been seen before, "initially showing that patients who drink a lot of coffee are less likely to get cirrhosis, and are then less likely to get hepatocellular carcinoma."

A recent study showed that, after adjustment for smoking status, coffee consumption was associated with prolonged life, "which is obviously critical," he explained (*N Engl J Med*. 2012;366:1891-904). Dr. Thursz believes that the benefits for cirrhosis would also extend to NAFLD, as the study by Dr. Bambha and colleagues suggests.

Although there has never been an intervention study involving coffee, he said many hepatologists are beginning to advise their patients that drinking coffee is good. However, it is difficult to get people who don't already drink coffee to start.

"It would be more interesting to see exactly what it is in coffee that confers this benefit," Dr. Thursz noted. "It's not necessarily obvious that the active moiety is caffeine. It's possible that some flavonoids in coffee are actually responsible for the active effect." There is ongoing research in this area, he reported.

Dr. Bambha referred to coffee as a "complex substance" that contains hundreds of components, including caffeine, vitamins, minerals, fiber, phenolic compounds, quinides, melanoidins, Maillard reaction products, lignans, ferulic acid, diterpenes, and trigonelline, to name a handful.

There was no commercial support for the study. Dr. Bambha and Dr. Thursz have disclosed no relevant financial relationships.

The Liver Meeting 2012: American Association for the Study of Liver Diseases (AASLD) 63rd Annual Meeting. Abstract 99. Presented November 11, 2012.

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Cite this article: Coffee Linked to Lower Risk for Severe Liver Fibrosis in NAFLD. *Medscape*. Nov 22, 2012.