

# Patients with cirrhosis and impaired cognitive abilities have more motor vehicle accidents

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A recent study by Jasmohan Bajaj, M.D., and colleagues from Virginia Commonwealth University and McGuire VA Medical Center found that patients with cirrhosis of the liver who developed minimal hepatic encephalopathy (MHE) had a 16% rate of motor vehicle crashes compared to only 4% of those without MHE over one year. The rate of accidents was also significantly higher than the state annual crash rate of 3%-3.3%. Results of the study are available in the October issue of *Hepatology*.

Minimal hepatic encephalopathy (MHE) is a prevalent neurocognitive complication associated with [cirrhosis](#) of the [liver](#). Up to 80% of cirrhotic patients are diagnosed with MHE, which causes impaired attention, response inhibition, visuo-motor coordination and psychomotor speed. Patients with MHE may progress to overt hepatic encephalopathy (OHE), which in addition to impaired cognition function, causes a flapping tremor (asterixis), decreased consciousness including coma, swelling of the brain ([cerebral edema](#)), and death.

The study followed 167 cirrhotic patients from Wisconsin and Virginia who had a diagnosis of MHE. Median age of participants was 53 years, an age group considered to have the safest driving record, and patients had on average 36 (+11) years of driving experience. Standard psychometric testing (SPT) was administered to evaluate mental processing speed, attention, and visuo-spatial coordination. The

inhibitory control test (ICT), a freely downloadable test of attention that uses a timed response to lures and targets, was also conducted to measure psychological performance.

Driving records (motor vehicle crashes and traffic violation) were obtained for all patients from the Department of Transportation in Wisconsin and Virginia for a one-year period prior to the study. Participants also completed a driving history that surveyed information on driving duration and driving offenses within 1 year of psychometric testing. At the one-year follow-up 109 patients remained; 58 patients were lost to follow-up, no longer driving, experienced disease progression, or death. In patients with MHE diagnosed by ICT, there was a 22% rate of future driving offenses, which was significantly higher than the 7% in those without MHE by ICT.

"Our study demonstrates a significantly higher rate of motor vehicle crashes in MHE patients defined by the ICT," confirmed Dr. Bajaj. The findings also found that ICT was a superior test to SPT in identifying those patients at risk of future auto accidents. Normal ICT performance was associated with crashes in 3% of cases, similar to the standard state rates. "A careful elicitation of the driving history and discussion with MHE patients and their families should be performed during clinical visits," recommended Dr. Bajaj.

More information: "Minimal Hepatic Encephalopathy is Associated with Motor Vehicle Crashes: The Reality Beyond the [Driving](#) Test," Jasmohan S Bajaj, Kia Saeian, Christine M Schubert, Muhammad Hafeezullah, Jose Franco, Rajiv R Varma, Douglas P Gibson, Raymond G Hoffmann, R Todd Stravitz, Douglas M Heuman, Richard K Sterling, Mitchell Shiffman, Allyne Topaz, Sherry Boyett, Debulon Bell, Arun J Sanyal. *Hepatology*; Published Online: June 15, 2009; [DOI: 10.1002/hep.23128](#)

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