

Detection and treatment for hepatic encephalopathy prevents car accidents, reduces costs

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A late stage liver condition, known as minimal hepatic encephalopathy (MHE), is associated with impaired driving skills and greater risk of motor vehicle accidents. Cost analysis of management strategies for detection and treatment of MHE are published in the April issue of *Hepatology*, a journal of the American Association for the Study of Liver Diseases. Findings report that MHE diagnosis using the inhibitory control test followed by treatment with lactulose was the most cost-effective approach--preventing the most car accidents and reducing societal cost by up to \$3.6 million over a 5-year period.

In [cirrhosis](#), as the liver fails, the build-up of [toxic substances](#) normally removed by the liver can lead to MHE—a reversible condition that causes cognitive impairment and loss of consciousness. Medical evidence reports that MHE is present in 55% of cirrhotic patients tested, and is associated with higher risk of motor vehicle collisions due to attention and visuomotor coordination deficits. The Inhibitory control test measures an individual's attention and experts suggest it could be cost-effective in diagnosing MHE and correlates with driving impairments.

Previous research estimates vehicular accidents cost more than \$200 billion per year in the U.S. in terms of lost productivity, medical costs, automobile damage, and insurance expenses. "Detection and treatment of MHE has potential to reduce costs and morbidity related to [car](#)

[accidents](#)," explains lead study author Dr. Jasmohan Bajaj with McGuire VA Medical Center and Associate Professor at Virginia Commonwealth University School of Medicine. "Our study analyzes the cost-effectiveness of various strategies for diagnosing and treating MHE to reduce vehicular accidents and the societal cost burden."

Researchers compared five strategies for managing MHE that included presumptive treatment of all cirrhotic patients; diagnosis by neuropsychological exam with therapy; psychometric diagnostic testing with treatment; diagnosis using inhibitory control test with treatment; and no MHE diagnostics or treatment. Analysis was conducted on a simulated group of 1,000 cirrhotic patients treated for MHE with [lactulose](#) or rifaximin, and followed for 5 years. Researchers estimated the societal cost of a single car accident to be \$42,100.

Results show the cost per motor vehicle accident prevented by diagnosing MHE with the inhibitory control test was \$24,454; standard psychometric tests was \$25,470; with presumptive treatment it was \$30,469; and with neuropsychological exam the cost was \$33,742. "Our findings provide strong evidence that detection of MHE, particularly the [inhibitory control](#) test, and subsequent treatment with lactulose reduces societal costs by preventing motor vehicle accidents in patients with MHE," concludes Dr. Bajaj.

The authors of a related editorial also published in this month's issue cite previous research that reports driving errors account for 71% to 98% of all [motor vehicle accidents](#). They suggest that the high percentage of traffic accidents involving driver error makes the assessment of driving abilities crucial for patients with MHE. The study by Bajaj et al. provides evidence which may encourage further real-life effect of MHE on accident rates, and according to the authors, raise awareness of the implications for patients with liver disease and the whole of society.

More information: "Diagnosis and Treatment of Minimal Hepatic Encephalopathy to Prevent Motor Vehicle Accidents: A Cost-Effectiveness Analysis." Jasmohan S. Bajaj, Steven D. Pinkerton, Arun J. Sanyal, Douglas M. Heuman. *Hepatology*; December 2, 2011 ([DOI: 10.1002/hep.25507](https://doi.org/10.1002/hep.25507)); Print Issue Date: April 2012.

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