Hepatic Encephalopathy Diagnostic Test Effective

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VIENNA — The same brief, Web-based neuropsychologic test that is used by all National Football League teams to assess players for the effects of concussion appears to be advantageous for the diagnosis of minimal hepatic encephalopathy.

The Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT v4.0) is a well-validated, computer-based neuropsychologic test that takes about 10 minutes. It's billable as a neuropsychologic test, user friendly, available in 13 languages, can be administered by anybody in the office, and produces immediate results without need of a clinical neuropsychologist to interpret the scores, Dr. Michel H. Mendler explained at the congress, which is sponsored by the European Association for the Study of the Liver.

"ImPACT could become a new standard for minimal hepatic encephalopathy testing, both in routine clinical practice and to evaluate treatments," said Dr. Mendler, a gastroenterologist at Loma Linda (Calif.) University.

Minimal hepatic encephalopathy (MHE) is a greatly underdiagnosed neurocognitive disorder present in 60%-80% of patients with cirrhosis. It results in impaired quality of life, increased work disability, and impaired driving made more hazardous by lack of insight. If unchecked, MHE can progress to overt hepatic encephalopathy, a more serious neuropsychiatric syndrome characterized by cognitive and motor deficits that often require hospitalization.

MHE includes deficits in mental processing speed, fine motor skills, memory, complex attention, constructive abilities, and visual-spatial orientation. These deficits, unlike those in overt hepatic encephalopathy, are subtle and re-

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cirrhosis who were screened for HCC with an initial ultrasound liver scan and alpha-fetoprotein (AFP) test, and then had a follow-up CT or MRI within 6 months.

There were 35 cases of HCC in the group. Ultrasound alone detected HCC in 26, for a sensitivity of 77% and a specificity of 99%. There were eight false negatives and one false positive. In the eight false-negative cases, a subsequent CT scan identified HCC. The mean AFP level in this group of patients was 32,325 ng/mL; only two patients had a level lower than 20 ng/mL.

In the 75 patients with a true negative ultrasound, the mean AFP level was 17 ng/mL. In all, 9% of the patients in this group had an AFP greater than 20 ng/mL, and one patient had a level of more than 400 ng/mL.

"In this series alone, 74 CT or MRI studies could have been avoided with the combined use of ultrasound and AFP for screening," said Dr. Soloway, the Marie B. Gale Centennial Professor of Medicine at the University of Texas Medical Branch, Galveston. "Ultrasound can eliminate more expensive imaging studies until confirmation is necessary, thus reducing the overall cost of medical monitoring for patients in HCC screening populations."

Dr. Jason B. Welch, also of the University of Texas Medical Branch at Galveston, was a coinvestigator. ■

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Major Finding: A combination of ultrasound and alpha-fetoprotein testing has a specificity of 100% and a sensitivity of 87% for detecting hepatocellular carcinoma in patients with cirrhosis.

Data Source: A retrospective review of 140 patients with cirrhosis who had the combination screening method followed within 6 months by CT or MRI.

Disclosures: Dr. Soloway reported having no relevant financial disclosures.

quire neuropsychologic testing for diagnosis, Dr. Mendler said.

Conventional neuropsychologic testing is cumbersome, he said. It's complex, lengthy, and the results require interpretation by a specialist. A widely used alternative is paper-and-pencil testing using several psychometric tests, such as Digit Symbol and Number Connection tests A and B. But the results of these tests are confounded by the substantial practice effect with repeated testing.

In contrast, ImPACT, which was developed by neuroscientists at the University of Pittsburgh, generates an unlimited number of alternate forms, avoiding the practice effect, Dr. Mendler continued.

He compared ImPACT with paper-and-pencil testing in 90 cirrhotic patients with no history of overt hepatic encephalopathy and 131 matched healthy controls. ImPACT scores identified 25 of 90 cirrhosis patients as having abnormal results consistent with MHE; paper-and-pencil testing identified 16, only 10 of whom were also ImPACT-positive.

In addition, ImPACT identified 12 of 74 paper-and-pencil test–negative patients as having MHE. Seven of 131 healthy controls were ImPACT-positive, a significantly lower false-positive rate than with paper-and-pencil testing, which was positive in 19 controls.

ImPACT-positive cirrhosis patients had a mean total Sickness Impact Profile score of 17.6, compared with 13.5 in ImPACT-negative patients and 2.6 for controls. The Sickness Impact Profile reflects physical and psychosocial functioning.

The ImPACT test (www.impacttest.com) yields four composite scores in the domains of visual memory, verbal memory, reaction time, and visual motor speed.

At present, there are no treatments approved for MHE. Studies are ongoing. It is thought likely, but is as yet unproven, that MHE will respond to the same therapies that are effective in overt hepatic encephalopathy, including lactulose, rifaximin (Xifaxan), and dietary manipulations. ■

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