GASTRO-HEP News

By Dee Rapposelli

FibroScan to be Marketed in the United States

The FibroScan 502 Touch device (EchoSens and Sandhill Scientific), including the M+ and XL probes, received 510(k) clearance from the US Food and Drug Administration on April 5th, 2013 and is ready to be marketed in the United States. FibroScan 502 Touch is the first device to use quantitative elastography in patients with liver disease and is indicated for noninvasive measurement of shear wave speed at 50 Hz in the liver.

Based on patented technology called Vibration-Controlled Transient Elastography, FibroScan assesses shear wave speed in the liver (expressed in meters per second) and equivalent stiffness (expressed in kilopascals) in a rapid and noninvasive manner, with minimal patient discomfort. A mechanical actuator, located in the probe, induces a 50 Hz shear wave that propagates through the liver and is monitored using ultrasound.

Shear wave speed and liver stiffness measured by FibroScan strongly correlate with liver fibrosis. The device has been validated in peer-reviewed publications and has been mentioned in international society guidelines.

FibroScan 502 Touch will be sold exclusively in the United States by Sandhill Scientific. For more information, visit www.sandhillsci.com or call (US toll-free) 800-468-4556.

Research into Suppression of Key Genetic Target Offers Hope for Cure of Chronic HBV Infection

Covalently closed circular DNA (cccDNA), a key therapeutic target in the race for a cure for chronic hepatitis B virus (HBV), was the topic of several presentations at the 48th annual meeting of the European Association for the Study of the Liver (EASL), which took place from April 24–28, 2013 in Amsterdam, The Netherlands.

Persistence of HBV seropositivity is attributable to the presence of cccDNA microchromosomes that form in the nucleus of infected hepatocytes primarily via histone and histone proteins. One study in humanized murine models of chronic HBV, conducted by researchers from the University Medical Center Hamburg-Eppendorf in Hamburg, Germany, demonstrated that rapid reduction of cccDNA levels occurs as the liver regenerates. However, residual cccDNA remains, leading to de novo infection in the absence of antiviral treatment. The findings suggest that hepatocyte turnover, pharmacotherapy-based viral suppression (ie, using nucleoside analogues or interferon), or methods of blocking cccDNA cell entry may accelerate clearance of cccDNA microchromosomes in the liver.

A research team from Sapienza University in Rome, Italy focused on the small molecules that target the epigenetic control of nuclear cccDNA microchromosomes. The investigators found that combined inhibition of p300 and PCAF histone acetyltransferase reduced HBV replication. The hSirt1/2 activator MC2791 and the JMJD3 inhibitor MC3119 inhibited both HBV replication and cccDNA transcription, suggesting the proof of concept that activation of hSirt1 and Ezh2 can induce active epigenetic suppression of the HBV cccDNA microchromosome in a way similar to that observed with interferon alpha.

Another German study by a team from the Technical University München and the Helmholtz Center München demonstrated that stimulation of the lymphotoxin beta receptor (LTbR) provides a long-lasting and noncytotoxic method to deplete HBV cccDNA load. The investigators studied the effect of antibodies that stimulated human LTbR (BS1 or CBE11) on cell culture models that included HBV-infected HepaRG cells and primary human hepatocytes. Results showed a strong and dose-dependent anti-HBV effect in which all HBV replication markers were decreased.

Value of Hepatitis B Neonatal Vaccination Initiative Demonstrated

The value of neonatal hepatitis B immunization was demonstrated in a Taiwanese study that tested 313 seronegative young adult volunteers for change in serostatus in hepatitis B surface antigen (HBsAg), antibody to hepatitis B core antigen, and antibody to HBsAg (anti-HBs) after 50 months' follow-up. Participants were recruited during a freshman-year health check-up. The mean age of participants was 23 years, and 69% were male. A total of 173 (59%) participants were identified, either through health records or self-report, as having received at least 1 dose of hepatitis B vaccine. At follow-up, 128 (74%) of these participants were deemed seroprotected for hepatitis B (anti-HBs titer ≥10 mIU/dL). Those participants who had received at least 3 doses of vaccine had the greatest rate of seroprotection, at 89%. The rate of seroprotection among those participants who had received 2 doses of vaccine was 82%, and the rate among those who had received only 1 dose was 57%. The rate of seroprotection failure among those participants who had confirmed documentation (via medical records) of having received at least 3 doses of hepatitis B vaccine (n=48) was 13%.

The study investigators recommended that individuals receive at least 2 doses of hepatitis B vaccine to better ensure seroprotection. The findings were reported at the 48th annual EASL meeting, which took place from April 24–28, 2013 in Amsterdam, The Netherlands.