Abstract / Povzetek predavanja

Liver MRI elastography: From setup to quality assurance

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The incidence of chronic liver disease is increasing in the Western world, leading to significant morbidity and mortality, with liver fibrosis as a common outcome[1]. While biopsy remains the gold standard for evaluating liver fibrosis and inflammation[2], its limitations necessitate noninvasive alternatives, especially for asymptomatic patients with progressive fibrosis. Among noninvasive techniques, MRE is highly regarded for its accuracy and repeatability in assessing liver stiffness using mechanical waves[3].

At our institution, MRE is performed using body-array coils. The procedure involves[4]:

1. Patient Preparation: Patients fast for 4 hours prior to the examination and hold their breath at end expiration to ensure consistent slice positioning.
2. Positioning of Passive Driver: The passive driver is placed over the right hepatic lobe, typically using the xiphoid process and right midclavicular line for positioning.
3. Slice Positioning: Slices are positioned to cover the largest liver surface area at the portal bifurcation, avoiding the liver dome and inferior portions.
4. Quality Control: This involves reviewing magnitude images for signal voids, phase and wave images for wave propagation, and elastograms for diagnostic quality.
5. MRE Analysis and Measurements: Images (magnitude, wave, grey- and color elastograms) are reviewed, and stiffness is measured in kilopascals (kPa) using three regions of interest (ROIs) on the greyscale elastogram map, excluding areas prone to artifacts.

MRE is a reliable noninvasive method for quantifying liver fibrosis, offering high reproducibility essential for managing and monitoring patients with chronic liver disease.

References

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