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Speaker : Byung Ihn Choi

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Session Name : Jisan Lecture

Date & Time : May 7 (Thu), 2026, 11:10-12:20

Presenting Time : 11:47-12:17(30mins)

Place : GBR 103

Lecture Title : Beyond Visual Grading: Quantitative Ultrasound for Diffuse Liver Disease

Language : English

Beyond Visual Grading : Quantitative Ultrasound for Diffuse Liver Disease.

Ultrasound(US) is dynamic(real-time) and readily available, repeatable, and mobile.

Multiparametric US(MPUS) can be defined by the use of multiple techniques, all contributing in a unique manner to aid the interpretation of an abnormality, giving an air of comprehensiveness in the pursuit and to achieve the correct diagnosis.

Diffuse liver diseases are fibrosis, steatosis and inflammation. Diagnosis of these diffuse liver diseases has been improved with development of multitude of US imaging technique namely, MPUS.

The World Federation for Ultrasound in Medicine and Biology(WFUMB) endorsed the development of the document on MPUS, Guideline 2024 Part 1 is an update to the WFUMB Liver Elastography Guidelines Update released in 2018 and provides new evidence on the role of US elastography in chronic liver disease.

The guidelines are clinically oriented, and the role of shear wave elastography in both fibrosis staging and prognostication in different etiologies of liver disease is discussed, highlighting advantages and limitations.

Part 2 is a guidance on the use of the available tools for the quantification of liver fat content with US. These are attenuation coefficient, backscatter coefficient, and speed of sound. All of them use the raw data of the US beam to estimate liver fat content. Confounding factors are discussed and a standardized protocol for measurement acquisition is suggested to mitigate them.

In this lecture, liver fibrosis by US elastography such as vibration controlled transient elastography (VCTE). Point and 2D Shear Wave Elastography (SWE), liver steatosis by Hepatorenal Index (HRI) attenuation Imaging (ATI), backscattering Imaging (TSI), US derived fat fraction (UDFF, USFF), liver inflammation by shear wave dispersion (SWD) imaging using viscosity, and combination of those imaging will be discussed.

The evidence based and combined approach of MPUS will eventually improve diagnostic accuracy of diffuse liver disease.

Reference

- 1.Sidhu PS. Multiparametric Ultrasound(MPUS)... Ultraschall in Med 2015;036:315-317
- 2.Ultrasound in medicine & Biology 50(2024) 1071-1087
- 3.Ultrasound in medicine & Biology 50(2024) 1088-1098