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Hepatocellular carcinoma (HCC) remains a major public health challenge in Korea, . Although the crude incidence has gradually declined over the past decade, the epidemiological landscape is shifting: the dominant etiology is transitioning from hepatitis B virus (HBV) infection toward metabolic-associated and alcohol-related liver disease, and the proportion of elderly patients is rising. These demographic and etiological changes, compounded by the expanding role of immunotherapy in advanced disease, demand increasingly precise and accessible diagnostic tools to guide locoregional and systemic treatment decisions.

Contrast-enhanced ultrasound (CEUS) has emerged as a particularly valuable imaging modality in this evolving Korean context, especially for patients in whom MRI is contraindicated or technically challenging, such as those with renal dysfunction or the growing elderly population. In Korea, Sonazoid (perfluorobutane) is the preferred contrast agent over SonoVue, owing to its Kupffer phase imaging capability, its utility in ultrasound-guided procedures including ablation, superior lesion detectability over extended time windows, and national health insurance coverage. The Korean Society of Abdominal Radiology (KSAR) has published dedicated Sonazoid CEUS diagnostic criteria for HCC, incorporating both standard nonrim arterial phase hyperenhancement with late washout and a modified algorithm that captures the Kupffer phase washout pattern—thereby enabling detection of early, well-differentiated, and nodule-in-nodule HCC that may be missed by conventional vascular phase assessment alone.

Despite its clinical utility, Sonazoid CEUS faces implementation challenges unique to the Korean healthcare setting. The examination is inherently labor-intensive and time-consuming compared with CT or MRI, creating a significant workload burden in institutions performing large volumes of hepatic imaging. Diagnostic accuracy is further limited by false-positive pitfalls, including pseudo-washout phenomena, hyperechoic hemangiomas, and fat-containing lesions that can make perception of APHE difficult. Ongoing refinement of diagnostic criteria—particularly regarding washout characterization and optimal Kupffer phase timing—is essential to improve the performance of Sonazoid CEUS. Addressing these challenges through protocol optimization and continued collaboration between ultrasound and radiology societies will be critical to sustaining the role of CEUS as a frontline diagnostic tool for HCC in Korea.