



SS01	Scientific Session 1
09:20-10:50	GBR 102
Chairperson(s): Young Sup Shim (Gachon University Gil Medical Center, Korea) Jung Jae Park (Chungnam National University Hospital, Korea)	

09:50-10:00 (SS01-P4)

Establishment of Sonographic Findings and Reference Values for Normal and Fibrotic Experimental Mouse Kidney

Myoungseok Lee¹, Min Hoan Moon¹, Chang Kyu Sung¹, Jeonghwan Lee², Jung Pyo Lee²

¹Department of Radiology, SMG-SNU Boramae Medical Center, Korea

²Department of Internal Medicine-Nephrology, SMG-SNU Boramae Medical Center, Korea

PURPOSE: To describe ultrasound findings of normal and fibrotic mouse kidney, to evaluate reference values of normal experimental mouse kidney regarding size, resistive index (RI), vascular index (VI) and quantified stiffness (shear wave velocity (SWV, m/s) and Young's modulus (YM, kPa)), and to compare those values between normal and fibrotic kidney with commercially available ultra-high-resolution clinical ultrasound system.

MATERIALS AND METHODS: Twenty-two kidneys of 15 normal mice and 19 kidneys of 19 fibrosis model mice were evaluated. Greyscale findings, RI and VI were at the long axis view using commercial 33MHz ultra-high-resolution probe. Shear wave elastography was performed by positioning 12 ROIs in the cortex under wave propagation reference, using 18MHz high-resolution probe. Two sessions were performed for each kidney for evaluating intraobserver reproducibility of elastography. Mean values of each parameter of normal kidneys were presented as reference values, and those parameters between normal and fibrotic mouse kidneys were compared.

RESULTS: Normal mouse kidney showed 3-layer configuration on grayscale image of ultra-high-resolution sonography: Cortex and outer medulla complex showing intermediate echo, low echoic inner medulla, and relatively hyperechoic renal papilla. The mean size was 11.1mm. The mean RI and VI was 0.64 and 25.5%. Elastography of mouse kidney was reliable and reproducible under the same observer: the intraclass correlation coefficient was 0.88. The mean value of median SWV and YM were 1.68(m/s) and 8.28(kPa), respectively. Fibrotic kidney showed significantly higher RI, SWV and YM(0.76, 2.05m/s, 12.62kPa) compared to normal kidney, and there was no significant difference between obstructive and non-obstructive renal fibrosis regarding RI and stiffness.

CONCLUSION: We tried to present sonographic findings of normal mouse kidney and reference values of various sonographic parameters using commercial ultra-high-resolution probe. Sonographic values are helpful to discriminate between normal and fibrotic mouse kidneys.