**Reproducibility of shear wave elastography liver measurements in healthy volunteers**

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**Purpose:** 2-D shear wave elastography (2D-SWE) (Logic E9, GE Healthcare, Barrington, Illinois) is a new imaging technique for the non-invasive assessment of tissue stiffness. We assessed the reproducibility of 2D-SWE in quantifying liver elasticity in healthy volunteers, using Acoustic Radiation Force Impulse (ARFI) imaging (Acuson S3000; Siemens, Mountain View, CA) as a reference control.

**Methods:** Elevenhealthy volunteers were examined twice, by four experienced operators, separated by a 1-week interval. Ten 2D-SWE and ARFI measurements, expressed in meters per second, were obtained from deep portions of liver segments 5 and 6 away from vascular structures. Each volunteer was examined on two occasions, with observers blinded to elastography measurements. Inter- and intra-observer agreement was assessed by the Cronbach alpha statistic, with values ≥ 0.7 considered to be reliable.

**Results:** 880 2D-SWE and ARFI velocity measurements were recorded from 4 operators. Mean values ± standard deviation from the four operators ranged between 1.188 ± 0.14 m/s and 1.196 ± 0.15 m/s for 2D-SWE and 1.170 ± 0.23 m/s to 1.207 ± 0.23 m/s for ARFI. Inter-observer agreement between measurements performed in the same subject on the same day for the four observers were similar for 2D-SWE (Cronbach alpha 0.964 and 0.982 for day 1 and 2, respectively) and ARFI (0.966 and 0.971). Similarly, the intra-observer agreement performed in the same subject on different days among the 4 operators were reliable for 2D-SWE (Cronbach alpha 0.820, 0.884, 0.864, and 0.915, respectively) and ARFI (0.727, 0.917, 0.828, and 0.841, respectively). For both the inter- and intra-observer variability, the Cronbach alpha statistic was ≥0.7, indicating the results were reliable.

**Conclusion:** This study shows that 2D-SWE is a reliable and reproducible method for elasticity in health volunteers.