Reproducibility of Acoustic Radiation Force Impulse Imaging in Thyroid and Salivary Glands with Experienced and Inexperienced Examiners.

Abstract:
Acoustic radiation force impulse (ARFI) imaging enables the sonographic measurement of tissue stiffness. The aim of this study was to evaluate if experience in ARFI imaging influences the reproducibility of ARFI imaging of the head and neck. Three experienced sonographers and three inexperienced sonographers performed ARFI imaging of thyroid, submandibular and parotid glands in 10 healthy volunteers. The examination was repeated after 2 wk. Ten single ARFI measurements were done in every gland. Inter-rater and intra-rater reliability was analyzed using the intra-class correlation coefficient (ICC). Moderate agreement was observed between experienced and inexperienced examiners (ICC = 0.46). In salivary glands, agreement was fair between the groups (ICC = 0.33), whereas in separate evaluations, inter-rater reliability in the submandibular glands was moderate (ICC = 0.52), and that in the parotid glands, only poor (ICC = 0.09). For ARFI imaging of the thyroid gland, there was moderate agreement between the groups (ICC = 0.50). The intra-rater reliability for the salivary and thyroid glands together and separately was strong in both groups. ARFI imaging of the thyroid and salivary glands did exhibit good reproducibility. ARFI imaging of the thyroid gland reached the highest levels of inter- and intra-observer...
agreement in both groups. ARFI imaging in salivary glands is only reproducible with experienced examiners.