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Clinical perspective on renal elasticity quantification by acoustic radiation force impulse: Where we are and where we are going

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**Abstract**

Recent interests have focused on the exploration of the mechanical properties (elasticity, stiffness and deformity) of parenchymatous organs using tissue strain imaging techniques and elastosonography. Measures of the mechanical properties of the kidneys have given conflicting results. There are various conditions that affect the variability of renal parenchymal measures, the main target of the investigations. They can be classified as intrinsic (depending upon the patient), extrinsic (depending upon the operator) and mixed (both intrinsic and extrinsic). Indeed, the mechanical properties of the kidney depend on various conditions that alter its histology, mainly the amount of fibrosis in the renal parenchymal interstitium. Anatomical factors play an important role because the kidney is a highly anisotropic organ with important differences when considering the cortex and the medulla. Physical factors include the frequency of the probe, compression and distance from source to target. Many factors can affect measurements and it is necessary to find an accurate technique in order to avoid mistakes and to obtain reproducible data. Indeed, it is imperative to define a standardized examination

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