

Evaluation of Acoustic Radiation Force Impulse (ARFI) for fibrosis staging in chronic liver diseases

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20472046&lokasi=lokal>

Abstrak

Background: acoustic radiation force impulse (ARFI) is a new proposed noninvasive method for liver fibrosis staging. Integrated with B mode ultrasonography, ARFI can be used to assess liver tissue condition. However its diagnostic accuracy is still being continuously evaluated. Also, there is lack of data regarding the utilization of ARFI in our population. This study aimed to evaluate the diagnostic value of ARFI as an alternative noninvasive modality for fibrosis staging in chronic hepatitis B and hepatitis C patients in our population.

Methods: we conducted cross sectional comparison of ARFI imaging and transient elastography on patients who underwent liver biopsy at Cipto Mangunkusumo Hospital. Fibrosis staging using METAVIR scoring system presented as standard reference. A total of 43 patients underwent liver biopsy was evaluated by ARFI imaging and transient elastography. Cut off values were determined using receiver operating characteristic (ROC).

Results: both liver stiffness determined by ARFI and transient elastography (TE) were moderately correlated with METAVIR score with value of 0.581 and 0.613, respectively (both $P < 0.01$). Diagnostic accuracy of ARFI predicted significant fibrosis ($F > 2$) with area under receiver operating characteristic curve (AUROC) of 0.773 (95% CI 0.616-0.930) and even better for cirrhosis (F4 fibrosis), expressed as AUROC of 0.856 (95% CI 0.736-0.975). Transient elastography was better for significant fibrosis with AUROC of 0.761 (95% CI 0.601-0.920) and was best for prediction of cirrhosis, expressed as AUROC of 0.845 (95% CI 0.722-0.968).

Conclusion: ARFI is provided with more convenient evaluation of liver tissue condition, and its diagnostic accuracy is not significantly different from TE for staging liver fibrosis.