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Liver Biopsy is the Gold Standard at Present, How about Tomorrow?

Karaciğer Biyopsisi Halen Altın Standart, Peki Gelecekte?

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Dear Editor;

Assessment of severity of liver disease in patients with chronic hepatitis has always been a challenge for the clinician. Liver biopsy is still considered the gold standard for this purpose. However, although rare, apart from severe complications such as bleeding, biliary perforation and peritonitis, pneumothorax or death, it has some other drawbacks including inaccurate staging due to sampling errors (needle biopsy samples only 1/50.000 of the liver), lack of standardization of staining, observer-dependent diagnostic variations (inter or intra observer), and financial burden (1,2,3,4). Moreover, patients undergoing liver biopsy may require hospitalization, thus, more than 90% of complications are likely to happen during the first 24 hours after biopsy (3). Also, in patients with chronic viral hepatitis, repeated biopsies for defining the therapy response or predicting prognosis in the posttreatment follow-up period may be another problem (4). For these reasons, there are attempts searching non-invasive predictive models to substitute liver biopsy (2,3,4).

Hence, we wanted to specify non-invasive modalities predicting the degree of liver disease, particularly fibrosis, and their advantages and disadvantages in a summary. Indeed, certain non-invasive modalities, including direct or indirect serum markers and imaging tools are available for determining fibrosis degree in patients with viral hepatitis, particularly hepatitis C virus infection (2,3,4).

Imaging methods evaluating liver stiffness, such as acoustic radiation force impulse, cross-sectional imaging, 2D-shear wave elastography, ultrasound-based transient elastography (TE) or magnetic resonance elastography can accurately assess the degree of liver fibrosis, but access to these techniques and their costs can be defined as drawbacks of the radiological tests (2,4). Additionally, TE, the most widely accepted method, cannot be implemented in patients with narrow intercostal spaces or in obese individuals (2,4).

Aside from imaging tools, serum markers, indirect or direct, may be the other options to evaluate liver fibrosis (2,3,4). Indirect serum markers, such as aspartate aminotransferase (AST), alanine aminotransferase (ALT), international normalized ratio, γ-glutamyl-transpeptidase, total bilirubin, γ2-macroglobulin, apolipoprotein A1, haptoglobin, cholesterol and platelet count or indices, singly or especially in a combination including age-platelet index, AST-to-ALT ratio, AST-to-platelet ratio index (APRI), Forns' index, fibrosis index based on four factors, Fibrotest, Fibroindex, Lok index, King's score and Goteborg University Cirrhosis Index have been evaluated in many studies with questionable results (2,3,4).

Furthermore, hepatic matrix metabolism markers, reflecting matrix accumulation (fibrogenesis) or degradation (fibrolysis), as direct markers including type IV collagen, hyaluronic acid, laminin, transforming growth factor beta 1, YKL-40, metalloproteinases or tissue inhibitors of metalloproteinases have been found to be useful in predicting fibrogenesis (2,3,4).

While direct serum markers are not routinely available in clinical practice, indirect serum markers are cheaper and allow a more widespread use (4). Accordingly, the World Health Organization guidelines recommend APRI score for defining severity of fibrosis in resource-limited countries (5). Moreover, a combination of non-

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invasive tests, particularly when they include TE and Fibrotest, has been demonstrated to improve accuracy (2).

As a conclusion, it is a fact that liver biopsy is still the gold standard for the diagnosis of chronic viral hepatitis despite several drawbacks, but in the future, it may change because of several studies showing non-invasive tests to become increasingly precise in predicting no, mild or advanced fibrosis in patients with viral hepatitis (2,3,4).

Ethics

Peer review: External and Internal peer-reviewed.

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