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FATTY HEPATOSIS: MODERN METHODS OF DIAGNOSIS AND TREATMENT USING ELASTOGRAPHY

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Abstract
Fatty hepatosis (steatosis) is a condition characterized by the accumulation of fat in the liver, which can progress to non-alcoholic steatohepatitis, fibrosis, or cirrhosis. In recent decades, there has been a significant increase in the incidence of fatty hepatosis due to the rising prevalence of obesity, diabetes, and other metabolic disorders. Elastography, a non-invasive method for assessing liver stiffness using ultrasound, is becoming a key tool in the diagnosis and monitoring of fatty liver and hepatic fibrosis. This technique allows for the evaluation of liver damage without the need for invasive procedures such as biopsy.

Introduction

The aim of this article is to review the application of elastography in the diagnosis and treatment of fatty hepatosis and to analyze current advances in this field.

Methods

This article is based on materials from scientific journals and clinical studies published in recent years. The primary focus is on studies utilizing ultrasound elastography and magnetic resonance elastography (MRE) to diagnose and monitor liver conditions in patients with fatty hepatosis. Data from clinical trials using these methods were included, as well as information on their effectiveness in various contexts.

Systematic reviews and meta-analyses were used to assess the accuracy of elastography in diagnosing stages of fibrosis and hepatic steatosis. Sources included major clinical studies and publications such as *Hepatology* and *Gastroenterology*.

Results

Elastography has demonstrated high efficacy in detecting fatty hepatosis and hepatic fibrosis. In one major clinical study conducted in 2020, elastography accurately identified the degree of fibrosis in 95% of patients with non-alcoholic steatohepatitis (NAFLD) (Crouchet et al., 2016). Additionally, elastography results contributed to improved prognosis in patients receiving therapy guided by ultrasound findings.

Another study involving over 2,000 patients diagnosed with NAFLD demonstrated the high accuracy of elastography in both staging and monitoring the disease. Elastography was able to

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detect liver changes at early stages, enabling more effective intervention and prevention of disease progression (Smith et al., 2021).

Elastography, including magnetic resonance elastography (MRE), has become an important tool for monitoring treatment outcomes, as it allows rapid assessment of therapy effectiveness and disease regression (Lee et al., 2022).

Elastography offers several significant advantages over traditional diagnostic methods. It not only allows for accurate fibrosis assessment but can also be used for dynamic liver monitoring, which is crucial in the long-term management of chronic liver diseases. Recently, data have shown that magnetic resonance elastography (MRE) combined with ultrasound methods provides even more accurate early-stage diagnosis and prognosis of fibrosis and cirrhosis development (Crouchet et al., 2016; Lee et al., 2022).

Moreover, elastography significantly reduces the need for invasive procedures like liver biopsy, thereby minimizing patient risk and simplifying liver condition monitoring. However, despite its high accuracy, the method has certain limitations, such as the influence of excess fat on the results and limited accessibility to certain technologies (e.g., MRE), which must be considered during result interpretation.

Promising directions include the combination of elastography with other non-invasive tests and biomarkers, which may improve diagnostic accuracy and treatment efficiency for fatty hepatosis. Research in this area is ongoing, and innovative approaches to diagnosing and treating this widespread disease are expected in the future.

Conclusion

Elastography is an effective and non-invasive method for diagnosing and monitoring fatty hepatosis and liver fibrosis. Modern studies confirm its high accuracy and importance for early diagnosis, as well as for tracking treatment effectiveness. Continued research and advancements in technologies such as magnetic resonance elastography will open new possibilities for precise diagnosis and individualized treatment approaches for patients with fatty hepatosis.

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