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TRANSIENT ELASTOGRAPHY FOR NON-INVASIVE ASSESSMENT OF LIVER FIBROSIS AND STEATOSIS

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Abstract. Liver fibrosis is a sign of advanced liver disease and is often an indication for treatment. The current standard for diagnosing liver fibrosis and steatosis is biopsy, but noninvasive alternatives are available; one of the most common is transient elastography . The liver is the largest internal organ. It supports many bodily functions, including digestion and nutrient storage, as well as aiding the body's immune system. Liver fibrosis is the name used to describe a scarring that can indicate damage to the liver. Viral infections, excessive alcohol use and certain diseases can damage the liver. Consequences of liver damage can be serious, including cirrhosis and death. If liver damage is detected early, it can often be treated effectively. Doctors can test how healthy a patient's liver is by taking a tissue sample with a needle, but there are other ways to check liver health that don't require needles or tissue samples. One option is called transient elastography, a scan that measures how stiff the liver tissue is (the more stiff the tissue, the more damaged the liver). We reviewed the evidence to determine the accuracy of transient elastography.

Keywords: Fibrosis, inflammation, transient elastography, steatosis.

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ТРАНЗИЕНТНАЯ ЭЛАСТОГРАФИЯ ДЛЯ НЕИНВАЗИВНОЙ ОЦЕНКИ ФИБРОЗА И СТЕАТОЗА ПЕЧЕНИ

Абстрактный. Фиброз печени является признаком запущенного заболевания печени и часто является показанием к лечению. В настоящее время стандартом диагностики фиброза и стеатоза печени является биопсия, но доступны неинвазивные альтернативы; Одной из наиболее распространенных является транзиентная эластография. Печень – самый крупный внутренний орган. Он поддерживает многие функции организма, включая пищеварение и хранение питательных веществ, а также помогает иммунной системе организма. Фиброз печени — это название, используемое для описания рубцов, которые могут указывать на повреждение печени. Вирусные инфекции, чрезмерное употребление алкоголя и некоторые заболевания могут повредить печень. Последствия повреждения печени могут быть серьезными, включая цирроз печени и смерть. Если повреждение печени обнаружено на ранней стадии, его часто можно эффективно вылечить. Врачи могут проверить, насколько здорова печень пациента, взяв образец ткани с помощью иглы, но есть и другие способы проверить здоровье печени, не требующие игл или

образцов тканей. Один из вариантов называется транзиторной эластографией — сканированием, которое измеряет жесткость ткани печени (чем жестче ткань, тем сильнее повреждена печень). Мы рассмотрели доказательства, чтобы определить точность транзиентной эластографии.

Ключевые слова: фиброз, воспаление, транзиторная эластография, стеатоз.

The results showed that transient elastography was about as accurate as taking a tissue sample. The objective of this analysis was to assess the diagnostic accuracy of transient elastography—alone for liver fibrosis and with controlled attenuation parameter (CAP) for steatosis—in patients with hepatitis C virus (HCV), hepatitis B virus (HBV), nonalcoholic fatty liver disease, alcoholic liver disease, or cholestatic diseases. (7) The analysis also aimed to compare the diagnostic accuracy of transient elastography with two alternative noninvasive technologies: FibroTest and acoustic force radiation impulse. Transient elastography ensures that if there is an error in reading, no output is provided. (2) This is advantageous in that only good-quality readings are reported, but when the technology was first developed, a large number of errors were associated with patients who had large amounts of visceral fat, preventing the TE waves from penetrating the liver as intended. (3) The manufacturer has since developed multiple probes to offer different options for technicians, substantially decreasing the proportion of the population in whom a reading is not possible. (4)

FibroScan also includes a newer technology known as controlled attenuation parameter (CAP) measurement, which can offer simultaneous measurement of steatosis. CAP is measured only if there is a valid TE measurement. (5) The ultrasound attenuation assesses steatosis of the liver by converting the amplitude of the ultrasound to waves expressed in decibels per metre (dB/m). (6) No significant difference in diagnostic accuracy for the non-invasive assessment of liver fibrosis was found for transient elastography and ARFI. Nevertheless TE significantly correlated with liver fibrosis while ARFI did not. CAP enables the non-invasive assessment of steatosis.

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