



## Tests for Liver Fibrosis and Cirrhosis in People with Suspected Liver Disease

### What is liver fibrosis and cirrhosis?

Liver fibrosis is a progressive condition in which the liver becomes scarred and stops working properly. The final irreversible stage of liver fibrosis is called cirrhosis. Liver fibrosis and cirrhosis are more common in people who have a chronic liver disease such as non-alcoholic fatty liver disease (NAFLD), alcohol-related liver disease, hepatitis B or hepatitis C.

### What are liver fibrosis tests?

There are three types of liver fibrosis test: direct tests, indirect tests, and liver biopsy.

Direct tests analyse a blood sample or measure liver stiffness using a machine similar to ultrasound. When you have liver fibrosis or cirrhosis these tests detect high levels of certain compounds in the blood or the liver is harder and less flexible than in healthy people.

Alternatively, doctors can calculate the likelihood a person has liver fibrosis using basic blood tests and factors such as age: this is known as an indirect test. Liver biopsy involves removing a small piece of liver tissue which is then examined under a microscope to detect liver fibrosis.

### What we did

We looked for an answer to two questions:

1. What is the most accurate test for detecting liver fibrosis and cirrhosis in patients with diagnosed or suspected NAFLD, alcohol-related liver disease, or hepatitis?
2. Which test for detecting liver fibrosis and cirrhosis is the best value for money in patients with diagnosed or suspected NAFLD, alcohol-related liver disease, or hepatitis?

### What we found

#### Test accuracy

We found evidence on the accuracy of four direct liver fibrosis tests: two that analysed blood samples (the ELF test™ and hyaluronic acid) and two that measured liver stiffness (Fibroscan®)

and ARFI elastography). These tests correctly detected 70% or more of cases of liver fibrosis and cirrhosis in patients suspected of having liver disease.

The two tests that measured liver stiffness – Fibroscan® and ARFI elastography – had similar accuracy for detecting clinically significant fibrosis and cirrhosis. Liver stiffness measured using Fibroscan® was compared with direct liver fibrosis tests that analysed blood samples and it was found that:

- Fibroscan® was better than the ELF test™ at ruling out fibrosis and cirrhosis.
- Fibroscan® was more accurate than measuring hyaluronic acid levels in the blood for detecting cirrhosis.

Two direct liver fibrosis tests – the ELF test™ and Fibroscan® – were better than indirect fibrosis tests for detecting fibrosis and cirrhosis. We didn't find any published information about the other tests we looked at compared with indirect tests.

The information considered did not report any harms to people who had a direct liver fibrosis test.

#### Value for money

The liver fibrosis test that was best value for money depended on the type of liver disease. Treating everyone with hepatitis C as if they had fibrosis provided the best value for money in these patients. Treating everyone with alcohol-related liver disease as if they had cirrhosis offered the best value for money in this patient group.

The fibrosis test with the best value for money in hepatitis B patients depended on whether patients were positive or negative for a blood marker called HBeAg. In HBeAg-positive patients testing for hyaluronic acid in the blood was the best value for money. When patients were HBeAg-negative the best value option was to treat all patients as if they had fibrosis.

Measuring liver stiffness using ARFI elastography was the best value for money in patients with NAFLD because it was better at correctly identifying patients with liver fibrosis. When value for money was calculated for diagnosing cirrhosis in patients with any liver disease, the ELF test™ on patient blood samples was the best option.

#### Practical considerations

Most direct liver fibrosis tests are not currently widely available in Scotland. The Fibroscan® and ARFI elastography tests that measure liver stiffness are currently restricted to hospital use. In future it might be possible to perform direct fibrosis tests in local health centres, but we did not find any information about this.

Patients undergoing tests for liver fibrosis may prefer to avoid invasive tests such as liver biopsy.

### What is our advice to NHSScotland?

We are not making any specific recommendations to NHSScotland about which direct fibrosis test to use because there is not enough information about the tests we were interested in. We need more information about how accurate direct tests for fibrosis based on blood samples are, compared with Fibroscan® and ARFI elastography.

Fibroscan® and ARFI elastography had similar accuracy for detecting significant fibrosis and cirrhosis. These are likely to be the most useful direct tests for liver fibrosis in hospitals in Scotland. We do not know which tests are most useful in local health care facilities because no information was found about testing in this setting.

The liver fibrosis test that was the best value for money depended on the underlying liver disease.

### Future work

More research is needed to establish how accurate direct liver fibrosis tests are and what effect they have on the treatment decisions.

This plain language summary has been produced based on SHTG Advice Statement 010-18 (July 2018)