Diagnostic accuracy and clinical impact of MRI-based technologies for patients with non-alcoholic fatty liver disease: systematic review and economic evaluation

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Plain language summary

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Non-alcoholic fatty liver disease includes a range of conditions that are caused by a build-up of fat in the liver, and not by alcohol consumption. This build-up of fat can cause inflammation. Persistent inflammation can cause scar tissue (fibrosis) to develop. It is important to identify patients with fibrosis because severe fibrosis can cause permanent liver damage (cirrhosis), which can lead to liver failure and liver cancer.

In the National Health Service, patients with non-alcoholic fatty liver disease undergo tests to determine whether they have fibrosis. The test results are not always accurate and multiple tests can give conflicting results. Some of the tests may not be suitable for patients who have a very high body mass index.

In the National Health Service, a liver biopsy may be offered to patients with inconclusive or conflicting test results or to those patients for whom other tests are unsuitable. However, liver biopsy is expensive, and is associated with side-effects such as pain and bleeding. Magnetic resonance imaging-based testing could be used as an extra test to help clinicians assess non-alcoholic fatty liver disease and identify patients who may need a liver biopsy.

We assessed two magnetic resonance imaging-based diagnostic tests, LiverMultiScan and magnetic resonance elastography. LiverMultiScan is imaging software that is used alongside magnetic resonance imaging to measure markers of liver disease. Magnetic resonance elastography is used in some National Health Service centres to assess liver fibrosis; however, magnetic resonance elastography requires more equipment than just an magnetic resonance imaging scanner.

We reviewed all studies examining how well LiverMultiScan and magnetic resonance elastography assess patients with non-alcoholic fatty liver disease. We also built an economic model to estimate the costs and benefits of using LiverMultiScan to identify patients who should be sent for a biopsy. Results from the model showed that LiverMultiScan may not provide good value for money to the National Health Service.

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This report

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