LiverMultiScan™ for liver disease

**TIMEFRAME**

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<th>Estimated earliest commercial availability in the UK</th>
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<td>Currently unclear</td>
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LiverMultiScan™ is multiparametric Magnetic Resonance Imaging (MRI) software developed by Perspectum Diagnostics Ltd to aid in the diagnosis and staging of liver disease.

LiverMultiScan™ enables a standard MRI system to assess liver tissue in a single fifteen minute scan. The procedure is non-invasive and does not require injection of contrast media. The software analyses the MRI data, and reports measures of liver fat, iron and fibrosis that can be used to make a diagnosis within minutes. The software also maps liver inflammation, iron and fat.

LiverMultiScan™ can be used in the diagnostic pathway following the onset of symptoms or an abnormal blood test, to determine if patients with suspected liver disease need further investigation. The company state the test helps to identify asymptomatic patients with liver disease (e.g. haemochromatosis and early liver fibrosis), and supports the triage of patients for referral and cancer surveillance. The software may also be used for the identification of patients with liver disease who are more likely to deteriorate and for the monitoring of patient response to liver disease treatment. The software is also designed for the evaluation of liver disease in obese patients and those with metabolic syndrome.

LiverMultiScan™ is CE marked and is being launched for private and NHS clinical use in October 2014. It is being publically launched and demonstrated at the American Association for the Study of Liver Disease meeting in Boston on 7th November 2014.
POTENTIAL FOR IMPACT

With the increasing prevalence of liver disease worldwide, there is a need for reliable methods to diagnose and stage liver disease. The UK’s Chief Medical Officer highlighted liver disease as a priority in the 2011 and 2012 CMO reports. One of the key investigations is liver biopsy, which is costly and invasive, carrying a risk of bleeding complications and pain. The company state there are currently no non-invasive, quantitative analysis tools to diagnose early liver disease and monitor response to treatment. Other methods for disease investigation include: Magnetic Resonance Imaging (MRI), Magnetic Resonance Elastography (MRE), Computerised Tomography (CT scan) and ultrasound, but these methods do not provide quantitative information about aspects such as liver iron, fat and fibrosis. The LiverMultiScan™ software enables current MRI systems to generate multiparametric liver data for early diagnosis and staging of chronic liver disease, without the need for a liver biopsy.

According to the company, the key benefit of using the LiverMultiScan™ software with an MRI system is safer assessment of disease progression/regression and/or response to therapy. The company adds that the LiverMultiScan™ can provide more information than a biopsy, particularly for liver diseases which are characteristically patchy (e.g. primary sclerosing cholangitis). LiverMultiScan™ has been used in the differentiation of non-alcoholic steatohepatitis (NASH) and non-alcoholic fatty liver disease (NAFLD). It is also the only liver scan in use by UK Biobank, a national health resource that aims to improve the prevention, diagnosis and treatment of serious and life-threatening illnesses.

Benefits for patients conferred by the LiverMultiScan™ include the potential for earlier diagnosis and management of liver disease which, the company claim, may save up to 32 weeks of time per patient. Patients may also be able to avoid unnecessary, invasive biopsy procedures and any associated complications. The company state the NHS may also benefit from fewer resources spent on alternative procedures including clinic appointments, ultrasound and liver biopsy. The company estimate a cost saving of approximately £1000 per new patient currently referred to general hepatology.

EVIDENCE

RELEVANT PAPERS


Banerjee R, Rial B, Pavlides M et al. Multiparametric magnetic resonance shows that obesity is strongly associated with hepatic steatosis in adults and children and can differentiate patients with NASH from NAFLD. Journal of Hepatology 2014;60(1):S344.  
http://www.journal-of-hepatology.eu/article/S0168-8278(14)60983-1/abstract

ONGOING STUDIES

UK BioBank Scanning Project. [Online]  
http://www.ukbiobank.ac.uk/  Accessed 22nd September 2014

UK Clinical Research Network. Advancing in-vivo imaging for stratified medicine programme: ‘LiverMultiScan™ with MRI- replacing liver biopsy. [Online]  

COMPANY INFORMATION

Perspectum Diagnostics is based in Oxford. The LiverMultiScan™ test is being evaluated in collaboration with clinicians and scientists at the University of Edinburgh, the NIHR Birmingham Liver Biomedical Research Unit and Perspectum Diagnostics.

INFORMATION FROM

This Alert is based on information from the company and a time-limited internet search.