New Study Using Cutting Edge MRI Technology Identifies Genetic Causes of High Liver Iron

Oxford, UK, July 24, 2019. A study into the mechanism behind liver iron accumulation confirms three genes are responsible for iron overload in the liver. High liver iron, often referred to as the Celtic Curse, is very common in the Irish population with as many as 1 in 8 suffering from this disease. Previous research using Liver*MultiScan* has shown that UK prevalence of iron overload is 4.8%.

Researchers from Perspectum together with collaborators from the University of Westminster, University College London as well as Lund University in Sweden, were able to non-invasively and rapidly quantify liver iron content using Liver*MultiScan*, multiparametric magnetic resonance imaging (MRI) technology. Over 8000 participants who had also provided DNA samples to the UK Biobank were scanned. Three genes were found with increased risk of developing higher liver iron content.

"Excess iron is a silent–and often deadly–cause of liver disease. This study underlines the value to patients of rapidly identifying elevated liver iron through non-invasive MRI screening. Faster diagnosis is a significant benefit to people affected by genetic haemochromatosis, the UK's most prevalent underdiagnosed genetic condition. Early diagnosis of iron overload caused by genetic haemochromatosis saves lives."—Neil McClements, Chief Executive at Haemochromatosis UK

This study shows the causes of elevated liver iron are systemic rather than liver-specific, with the same genes associated with other diseases such as diabetes, high blood pressure, and heart disease. This may lead to new strategies to manage these conditions. New treatments from companies such as La Jolla are currently in clinical trials. This is important, especially when a patient has multiple liver diseases, such as iron overload and fatty liver disease.

This study also provides support for multiparametric MRI as a non-invasive and radiation-free technique for quantifying liver iron content.

"Identifying patients at risk for iron overload allows preventative action to be taken, both in the form of giving blood, and with lifestyle changes such as reducing red meat consumption."—Dr Rajarshi Banerjee, CEO, Perspectum

Note for editors
The article is "Genetic studies of abdominal MRI data identify genes regulating hepcidin as major determinants of liver iron concentration" by Henry R. Wilman, Constantinos A. Parisinos, Naeimeh Atabaki-Pasdar, Matt Kelly, E. Louise Thomas, Stefan Neubauer et al. (https://doi.org/10.1016/j.jhep.2019.05.032).

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