

AI-aided MRI Could Replace Liver Biopsy to Monitor Autoimmune Hepatitis



Autoimmune hepatitis (AIH) is a rare chronic liver disease affecting an estimated number of 10 000 people in the UK; it has a prevalence of 34.04 per 100,000.

A team of researchers in the U.K. investigated whether using AI-augmented multiparametric MRI, a novel imaging technology, could be used as a robust non-invasive alternative to liver biopsy. The results of this study demonstrated that this novel imaging technology is less costly and less risky.

The team, led by Mamta Bajre, healthcare economist at Oxford Academic Health Science Network, followed a 100-patient cohort across five years. It was assumed that all cohort patients with moderate to severe AIH would receive an annual liver biopsy.

The team evaluated the cost of each patient's monitoring tests and the costs of biopsy-related side-effects. This was based on published NHS payment rates and average expenses for biopsy-related adverse events.

They performed sensitivity analyses to assess and compare the costs of introducing serial AI-aided mpMRI scanning against the costs of liver biopsy. The results revealed that mpMR scanning was a cost-saving alternative to liver biopsy. Economic modelling showed patients monitored with an annual mpMRI scan may lead to significant healthcare cost savings by at least £232,333.

In addition, £139,400 would be saved per 100 mild/moderate autoimmune hepatitis patients receiving three mpMRI scans over five years. Further, an increase from three to six mpMRI scans over five years for patients with mild/moderate autoimmune hepatitis could potentially save £73,156.

Liver biopsy may lead to post procedure complications, which can be associated with high care costs. Approximately 32.5% of patients suffer from complications, including pain (24.1%), major bleeding (2.7%), transient hypotension (1.0%) and a mortality rate of as high as 1.2%.

Whereas, monitoring AIH patients using mpMR scanning can eliminate the risk of such complications, and therefore lessens the associated costs and hospital admission rates.

It must be noted, biopsy can only be replaced for monitoring the condition and not for diagnosing autoimmune hepatitis.

Overall, the present results suggest that, "the integration of non-invasive AI-mpMR scanning in autoimmune hepatitis patient pathways has the potential to improve the monitoring care pathway and may result in cost savings for autoimmune hepatitis patients in secondary care in the NHS in England".

Source: [BMJ](#)

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