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Magnetic resonance enterography to predict disabling disease in newly diagnosed Crohn's disease: the METRIC-EF multivariable prediction model, multicentre diagnostic inception cohort study

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Plain language summary

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Plain language summary

Crohn's disease is a chronic lifelong inflammatory bowel condition. Patients can have mild disease, but others develop 'disabling' disease, which often requires treatment with powerful medication and bowel surgery. At the time of diagnosis, there are currently no reliable ways to predict if a patient will have mild or disabling disease in the future, although some factors, such as young patient age and smoking, are associated with worse outcomes. Knowing which patients are most likely to develop disabling Crohn's disease would be very useful because they could be considered for medication earlier to try and prevent this. Typical medications include biologic drugs, which suppress the immune system. Magnetic resonance enterography is a bowel imaging test often performed at diagnosis which demonstrates the extent of bowel involvement, how much inflammation is present and if there are complications, such as abscesses or bowel narrowing. Using statistical modelling, we investigated whether adding detailed analysis of magnetic resonance enterography images to standard predictors, such as age and smoking, could improve the prediction of future disabling disease within 5 years. We also estimated the healthcare costs incurred within 5 years of a new diagnosis of Crohn's disease. We studied 194 newly diagnosed patients from 9 NHS hospitals, of whom 42% (81/194) developed disabling disease. Magnetic resonance enterography did not improve our predictive ability compared to standard clinical factors. In a hypothetical group of 1000 patients, we would predict 418 to develop disabling disease, of whom we would correctly predict 206 patients but incorrectly identify 212 patients who would actually not develop disabling disease. The average cost per patient over 5 years was £24,267 (£29,763 for those developing disabling disease and £20,327 for those who did not). The largest contributor to costs was biologic drugs. Magnetic resonance enterography remains vital for diagnosing and monitoring Crohn's disease but does not improve prediction of which patients will develop disabling disease.

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