

Enhanced neoplasia detection in chronic ulcerative colitis: the ENDCaP-C diagnostic accuracy study

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Plain English summary

The ENDCaP-C diagnostic accuracy study

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Plain English summary

Ulcerative colitis causes damage to the large bowel (lower part of the gut) lining (mucosa) over many years and is associated with an increasing risk of large bowel cancer. Annually, approximately 1000 NHS patients with ulcerative colitis have a major operation to remove the large bowel because of cancerous change. Direct inspection of the bowel (via colonoscopy) is performed regularly to identify early cancer, but this is challenging because the bowel lining appearance is altered by ulcerative colitis. This study looked to develop and test whether or not detecting changes in deoxyribonucleic acid (DNA) (methylation) in the cells lining the large bowel might improve early cancer detection and overcome the difficulty in identifying early cancer.

The first part of the study tested 11 genes (found in the DNA inside every cell) previously reported as being altered in early bowel cancers. This was carried out on small samples of the bowel lining (i.e. biopsies) taken during colonoscopies. Five of the genes tested were identified as being closely associated with early bowel cancer in ulcerative colitis patients.

We then tested the selected five genes in new biopsies from 818 patients (across 31 hospitals) undergoing regular bowel examination for ulcerative colitis. This confirmed an association between these deoxyribonucleic acid changes in background bowel lining and early cancer located elsewhere in the bowel. This suggested that methylation testing might improve the accuracy of the colonoscopy for ulcerative colitis-associated bowel cancer. We further tested this finding by repeating the bowel examination in selected patients. This test did identify more patients with cancerous changes, but adding the methylation test did not show significant benefit above the colonoscopy.

We have shown for the first time that a DNA-based test on the bowel lining can help detect early cancer in patients with ulcerative colitis. However, this association was not strong enough to show a measurable additional benefit.

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