Virtual chromoendoscopy for the real-time assessment of colorectal polyps in vivo: a systematic review and economic evaluation

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Plain English summary

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Colorectal polyps are growths in the large bowel. Some polyp types, called adenomas, can develop into bowel cancer if not diagnosed and removed. Specialised doctors or nurses, called 'endoscopists', can find polyps when they look at the inner lining of the large bowel (colonoscopy). If a polyp is found, it is removed and sent to a laboratory to see if it is an adenoma (this is called 'histopathology'). A new technique, called virtual chromoendoscopy (VCE), allows the endoscopist to view the polyp in a different way, and this can be used during a colonoscopy to help endoscopists decide if a very small polyp (5 mm or smaller) is an adenoma or not, instead of sending the polyp to a laboratory. If the endoscopist is confident that the very small polyp is not an adenoma it could be left in the bowel, rather than removed. We aimed to assess the benefits and harms of three VCE technologies for diagnosing very small polyps compared with histopathology, and whether or not these are an effective use of NHS financial resources. We found and reviewed all the studies that had assessed the three technologies [narrow-band imaging (NBI), i-scan, and flexible spectral imaging colour enhancement (FICE)], using standard methods, and created an economic model. We found that the proportion of adenomas that were correctly identified as adenomas by VCE varied between studies from 55% to 97%. Limiting the analysis to the polyp assessments that endoscopists made with high confidence typically increased the proportion of adenomas that were correctly identified as adenomas by VCE, but results still varied between studies from 59% to 98%. Endoscopists experienced in VCE achieved better results than those without experience. VCE techniques were estimated to be cost saving compared with histopathology. The model estimated that NBI and i-scan had slightly better long-term outcomes than histopathology, whereas FICE had slightly worse outcomes.

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