Flexible spectral imaging color enhancement and indigo carmine in neoplasia diagnosis during colonoscopy: a large prospective UK series.

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Abstract

OBJECTIVES:

At present, all colonic polyps are removed and sent for histopathological evaluation, resulting in laboratory and reporting costs. Recent American Society for Gastrointestinal Endoscopy (ASGE) guidelines have set standards for in-vivo diagnosis in place of conventional histopathology, and all future technologies will have to be tested against these standards. Data on flexible spectral imaging color enhancement (FICE) were very limited. This study aims to evaluate the accuracy of FICE and indigo carmine (IC) for in-vivo histology prediction for polyps of less than 10 mm in size and to assess the economic impact of this strategy.

METHODS:

In a screening population, polyps of less than 10 mm were assessed using white light (WLI) by FICE, by IC, and the predicted diagnosis was recorded. Polyps were then removed and sent for histological analysis. Accuracy of the predicted rescope interval was calculated using British Society of Gastroenterology and ASGE guidelines. Two models for using in-vivo diagnosis were proposed and savings in terms of histopathology costs calculated.

RESULTS:

A total of 232 polyps of less than 10 mm were examined. FICE improved the accuracy of in-vivo diagnosis of adenoma to 88% compared with 75% with WLI (P<0.0001). IC after FICE improved this further to 94%. Rescope interval could be set correctly using FICE or IC in 97% of cases by British Society of Gastroenterology guidelines or 97% with FICE and 99% with IC using ASGE guidelines. A saving of £678,253 (€762,767) per annum could be made within the UK national screening population.

CONCLUSION:

FICE and IC significantly improves the in-vivo diagnosis of colonic polyps over WLI and can lead to significant cost savings.

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