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Computed Tomographic Virtual Colonoscopy to Screen for Colorectal Neoplasia in Asymptomatic Adults

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ABSTRACT

BACKGROUND

We evaluated the performance characteristics of computed tomographic (CT) virtual colonoscopy for the detection of colorectal neoplasia in an average-risk screening population.

METHODS

A total of 1233 asymptomatic adults (mean age, 57.8 years) underwent same-day virtual and optical colonoscopy. Radiologists used the three-dimensional endoluminal display for the initial detection of polyps on CT virtual colonoscopy. For the initial examination of each colonic segment, the colonoscopists were unaware of the findings on virtual colonoscopy, which were revealed to them before any subsequent reexamination. The sensitivity and specificity of virtual colonoscopy and the sensitivity of optical colonoscopy were calculated with the use of the findings of the final, unblinded optical colonoscopy as the reference standard.

RESULTS

The sensitivity of virtual colonoscopy for adenomatous polyps was 93.8 percent for polyps at least 10 mm in diameter, 93.9 percent for polyps at least 8 mm in diameter, and 88.7 percent for polyps at least 6 mm in diameter. The sensitivity of optical colonoscopy for adenomatous polyps was 87.5 percent, 91.5 percent, and 92.3 percent for the three sizes of polyps, respectively. The specificity of virtual colonoscopy for adenomatous polyps was 96.0 percent for polyps at least 10 mm in diameter, 92.2 percent for polyps at least 8 mm in diameter, and 79.6 percent for polyps at least 6 mm in diameter. Two polyps were malignant; both were detected on virtual colonoscopy, and one of them was missed on optical colonoscopy before the results on virtual colonoscopy were revealed.

CONCLUSIONS

CT virtual colonoscopy with the use of a three-dimensional approach is an accurate screening method for the detection of colorectal neoplasia in asymptomatic average-risk adults and compares favorably with optical colonoscopy in terms of the detection of clinically relevant lesions.

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