

THE CLINICAL VALIDATION OF A COMPUTER-AIDED POLYP DETECTION MODEL INTEGRATED AS A PLUG-AND-PLAY ENDOSCOPY DEVICE (ALTER-EGO TRIAL)

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Poster

Colorectal

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The ALTER-EGO trial demonstrated that migrating a GPU-based AI colorectal polyp detection algorithm to a lower-cost FPGA-based plug-and-play device maintained equivalent detection sensitivity (95.6%) but resulted in a significantly higher false positive rate and increased technical failures.

KEY POINTS

- The FPGA-based CADe system achieved 95.6% sensitivity for polyp detection (95%CI: 93.7-96.9) compared to 96.4% for expert endoscopists, with detection equivalent to the original GPU-based system (difference -0.82%, $p=0.5040$).
- Among 724 polyps in 291 patients, the CADe detected 25 polyps (3.5%) missed by endoscopists, while missing 31 polyps (4.3%) detected by endoscopists.
- Hardware-related adjustments required for FPGA integration increased the false positive rate from 1.7 to 8.8 per minute ($p<0.001$).
- Technical failures occurred in 49 patients with 109 events of technical deficiencies reported during the multicenter Belgian trial.
- This study is relevant for clinicians and developers considering trade-offs between cost-effective hardware platforms and operational stability in AI-assisted colonoscopy.

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