

LCI[®] in Clinical Studies

Published in *Gastrointestinal Endoscopy*, Vol. 91, Issue 6, AB232:

Linked Color Imaging or White-Light Colonoscopy for the Detection of Flat Colorectal Lesions: A Randomized Controlled Trial

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Abstract # Sa1993 from DDW[®] 2020



Background and study aims: Linked color imaging (LCI) provides bright endoscopic images with enhanced color tones. The aim of this study was to compare LCI colonoscopy and white-light (WL) colonoscopy for the detection of flat type colorectal polyps.

Patients and methods: This was a randomized controlled trial (ClinicalTrials.gov number, NCT03272945) which enrolled patients age ≥ 50 years undergoing colonoscopy for screening of colorectal polyps. Participants were randomly assigned observation using LCI (LCI group) or WL imaging (WL group). Both arms used cap-assisted colonoscopy. All lesions detected were resected or biopsied. The primary outcome was the prevalence of flat type polyps/patient in patients in whom flat polyps were detected using cap-assisted LCI or WL colonoscopy. Secondary outcomes were adenoma and polyp detection rates. Six endoscopists also compared the LCI or WL images of the flat lesions detected using a 4-point visibility scale (excellent to poor).

Results: Of 305 patients randomized, 293 were included in the final analysis. The patients' clinical features were similar between the groups. Among patients with flat polyps detected, the prevalence of flat polyps/patient was approximately doubled using LCI vs. WL (2.9 ± 3.0 vs. 1.2 ± 1.6 , $P = 0.045$). The mean adenoma and polyp detection rates for LCI were also significantly higher than with WL; [adenoma, 65% (95% CI: 57-73%) (96/147) vs. 47% (95% CI: 39-55%) (69/146), $P = 0.002$; for polyps, 68% (95% CI: 60-75%) (100/147) vs. 53% (95% CI: 45-61%) (78/146), $P = 0.01$]. Significantly more polyps were detected in the right colon with LCI than the left colon compared with WL ($P < 0.01$). Multivariate logistic regression analysis identified three factors: LCI, right colon and adenoma, to be significantly associated with the detection of flat polyps. The median visibility score using still images for LCI was significantly greater than for WL (3 vs 2, $P < 0.01$). When we compared scores between experts and trainees, there was the same tendency as the scores of all endoscopists, irrespective of experts or trainees.

Conclusions: LCI improved adenoma and polyp detection rates including detection of flat type colorectal polyps compared with WL colonoscopy.

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FUJIFILM SUMMARY

Flat colorectal polyps are difficult to find under any condition. This randomized study comparing LCI and White Light Imaging (WL) shows favorable results for LCI in detection of these polyps.

Key Takeaways:

1. Among patients with flat polyps detected, the prevalence of flat polyps/patient was approximately doubled using LCI vs. WL (2.9 ± 3.0 vs. 1.2 ± 1.6 , $P = 0.045$).
2. LCI significantly increased adenoma detection rate to 65% compared to 47% vs white light (WL).
3. LCI significantly increased polyp detection rate to 68% compared to 53% vs white light (WL).
4. The median visibility score using still images for LCI was significantly greater than for white light (WL).

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