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Colorectal Adenoma Detection by Colonoscopy with Linked Color Imaging Versus White Light Imaging: Randomized Control Study

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Background and Aims: The adenoma detection rate (ADR) is an important indicator for reducing the incidence of colorectal cancer and evaluating the quality of colonoscopy. White light imaging (WLI) has been used to detect lesions, but this method is known for possible oversight. Recently, it has been reported that usage of linked color imaging (LCI) of the LASEREO system has led to a higher ADR. In this study. The aim of this study was a randomized prospective control study to compare adenoma detection between LCI and WLI in colonoscopy (UMIN 000029532).

Methods: A total of 1,000 patients undergoing colonoscopy for positive fecal occult blood, follow-up of colon polyps, and abdominal symptoms were included. Patients were randomly assigned to transparent hood assisted-colonoscopy with LCI (LCI group) or
WLI (WLI group). Cecal insertion time, withdrawal time, ADR, mean adenoma number per patient (MAP), mean adenoma number in the location, size, and the experience of endoscopists were investigated in both groups.

Results: 495 patients underwent colonoscopy with LCI (LCI group) and 505 with WLI (WLI group). One patient in LCI group and four patients in WLI group were excluded because of colonic stenosis due to colonic adenocarcinomas or the difficulty in cecal insertion. There was no significant difference in the cecum arrival rate with 99.5% in LCI group and 99.4% in WLI group (p=0.6). 494 patients (303 men/191 women, median age 65.4 years) were assigned to LCI group and 501 patients (316 men/185 women, median age 65.0 years) were assigned to WLI group. There were no significant differences in the cecal insertion time and withdrawal time. There was no significant difference in ADR with 47.0% in LCI group and 47.0% in WLI group (p=0.7). However, MAP in LCI group was significantly larger than that in WLI group (LCI 1.07, WLI 0.88, p<0.05). MAP in the LCI group was significantly higher than that in the WLI group in the descending colon (LCI 0.11, WLI 0.06, p=0.04) and in the sigmoid colon (LCI 0.41, WLI 0.30, p=0.04). Furthermore, the adenoma number of the sessile type (Is) in the LCI group was also significantly higher than that in the WLI group（LCI 341/494, WLI 294/501, p<0.05）.There were no significant differences in MAP between LCI and WLI groups among size groups (<5mm, 6-9mm, 10mm<) or between experts and non-experts of endoscopists.

Conclusion: Colonoscopy with LCI is more useful for mean adenoma number per patient, especially in the location of descending and sigmoid colon and the type of Is.

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FUJIFILM SUMMARY

Endoscopists may have trouble evaluating early gastric cancer lesions due to their subtle nature. This study focused on non-expThe LASEREO system, though not commercially available in the United States, has a similar LCI technology as the ELUXEO system that is available in the United States. This randomized study shows the impact of LCI on mean adenoma per patient with no difference in insertion or withdrawal times for LCI and WLI groups.

Key Takeaways:

1. Mean adenoma number per patient (MAP) in LCI group was significantly larger than that in WLI group [LCI 1.07, WLI 0.88].
2. The number of the sessile type adenomas (Is) in the LCI group was also significantly higher than that in the WLI group [LCI 341/494, WLI 294/501].

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