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STUDY SUMMARY

Texture and Color Enhancement Imaging Improves Colonic Adenoma Detection: A Multicenter Randomized Controlled Trial

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Young E, Rajagopalan A, Tee D, Sathananthan D, Hoile S, Singh R.

Conclusion

TXI™ technology improves both the adenoma detection rate and the number of adenomas detected per colonoscopy compared to white light. This effect is most significant for flat and right-sided polyps which are frequently missed at colonoscopy.

Objective

To evaluate the impact of Texture and Color Enhancement Imaging technology on polyp detection during real-world colonoscopy.

Design

Multicenter randomized controlled trial

(Evidence Level 2*, according to Oxford Center Evidence based Medicine (2011))

Primary Outcome

Adenoma Detection Rate (ADR) using TXI technology versus White Light Endoscopy (WLE)

Colonoscopy

- The procedures took place in two endoscopy centers: Lyell McEwin Hospital and Modbury Hospital, in Adelaide, South Australia. The study included four physicians who all had at least 5 years of prior colonoscopy experience. One physician was a high-ADR endoscopist (ADR greater than 55%).
- All procedures were performed using high-definition Olympus® EVIS EXERA™ III CF-HQ190 colonoscopes and the EVIS X1™ endoscopy system. A transparent cap attachment was used for all procedures to ensure standardization between proceduralists.
- After colonoscope insertion to the cecum, the assigned mucosal imaging (either WLE or TXI technology mode 1) was selected.

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Participant Characteristics

- Between March 2021 and April 2023, 338 patients over the age of 18 scheduled for colonoscopy were recruited, with 14 patients excluded after randomization due to inadequate bowel preparation (n = 10) or an incomplete procedure (n = 4).
- The study included participants with diverse indications for colonoscopy, such as being Fecal Occult Blood Test (FOBT) positive, undergoing surveillance colonoscopy, or presenting with symptoms.
- There were no significant differences between the TXI™ technology and WLE groups in baseline variables.

Results

- The ADR was significantly higher with TXI technology (54.60%) versus WLE (40.99%, p = 0.01).
- Mean number of adenomas per colonoscopy (APC) was also higher in the TXI technology group (1.71) compared to the WLE group (0.94, p < 0.01). This was despite a longer median withdrawal time in the WLE group versus TXI technology (6 minutes 55 seconds versus 7 minutes 13 seconds, p = 0.049).
- APC for adenomas ≥5mm in size was significantly higher with TXI technology (1.2) versus WLE (0.65, p = 0.02). However, for adenomas ≥10mm there was no significant difference (0.26 versus 0.15, p = 0.2). TXI technology yielded a mean of 0.58 flat adenomas per colonoscopy, compared to 0.24 for WLE (p <0.01).
- For right-sided polyps TXI technology detected a mean of 1.13 APC compared to 0.73 in the WLE group (p = 0.03).
- TXI technology led to a significant increase in adenoma detection in proceduralists with an ADR >55% (high detectors) and those with an ADR <55% (standard detectors) in this cohort. In high detectors, the mean APC for the TXI technology group was 2.82 versus 1.13 in the WLE group (p = 0.006). In standard detectors, the mean APC for the TXI technology group was 1.47 versus 0.88 for the WLE group (p = 0.03).

Note

This is the second randomized controlled trial to investigate efficacy of TXI technology to detect colorectal neoplasia, this study was conducted at two endoscopy centers in Australia.

The study has the following limitations:

- Lack of Blinding: Proceduralists were not blinded to the intervention (use of TXI technology or WLE), introducing the potential for performance and detection bias. Lack of blinding may influence proceduralists' behavior and interpretation of findings.
- Population Variability: While the study was conducted in Australia, the findings might not be universally applicable to different populations or settings.

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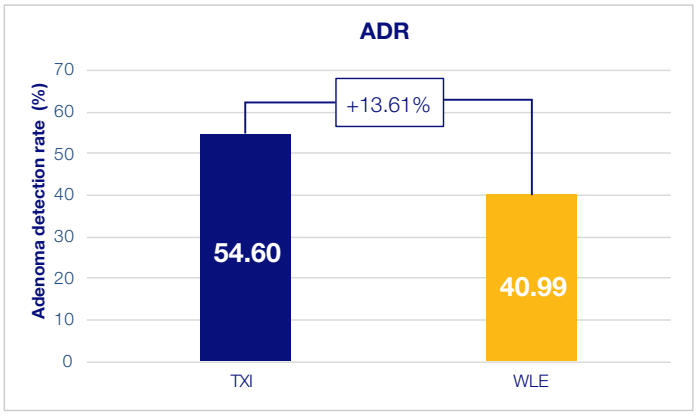

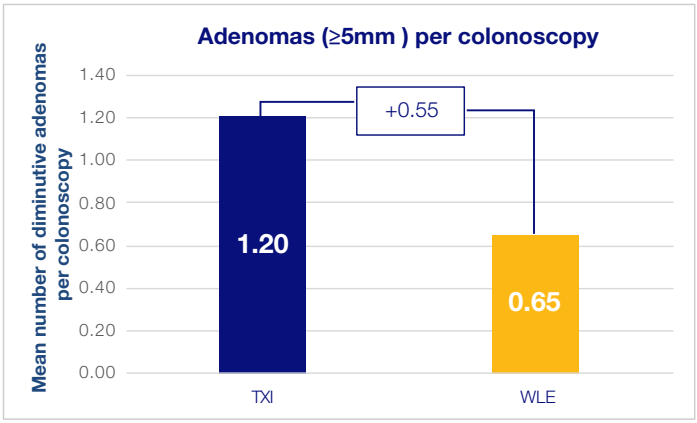

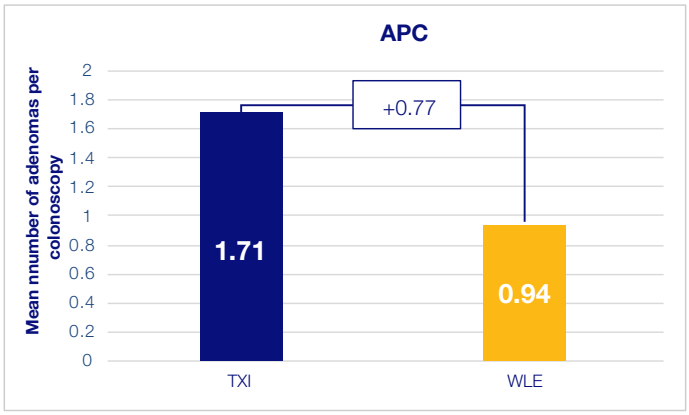

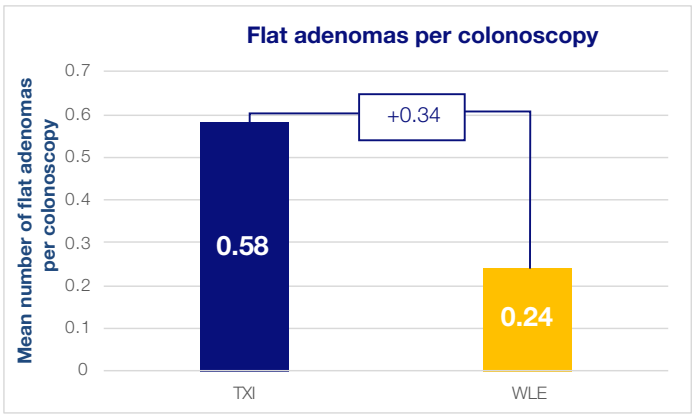

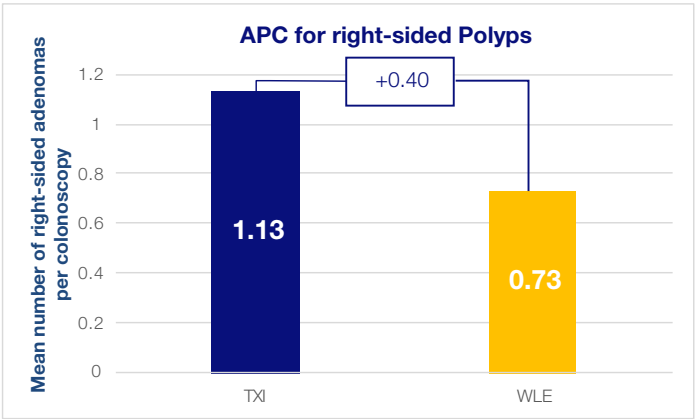

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