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Study Summary

Improved Visibility of Palisade Vessels Within Barrett's Esophagus using Red Dichromatic Imaging

A Retrospective Cross-sectional Study in Japan

Clin Endosc. November 11, 2024. doi:10.5946/ce.2024.122. Ueda C, Tanaka S, Yoshizaki T, et al.

Conclusion

Red Dichromatic Imaging (RDI™) technology significantly improves the visibility of palisade vessels in Barrett's esophagus when compared to white light imaging and Narrow Band Imaging™ (NBI™) technology

Objective

To assess whether RDI™ technology enhances the visibility of palisade vessels (PVs) in Barrett's esophagus in comparison to white light imaging (WLI) and NBI™ technology.

Design

Retrospective study (Evidence Level 3*, according to Oxford Center Evidence based Medicine (2011))

Primary Outcome

The visibility score of PVs within Barrett's esophagus using different imaging modalities, i.e. RDI technology, WLI and NBI technology.

Esophagogastroduodenoscopy

- The procedures took place in Kobe University Hospital and Tanaka Clinic in Japan.
- The endoscopic images were obtained by expert endoscopists from patients planning to undergo esophagogastroduodenoscopy (EGD) using the EVIS X1 system and GIF-XZ1200 (Olympus Corp.).
- Ten endoscopists consisting of five experts and five trainees evaluated the visibility of PVs in Barrett's esophagus on 66 images from 22 patients.
- In this study, mode 3 was used for all RDI endoscopic images.

Participant Characteristics

Between November 2022 and June 2023, 22 patients confirmed Barrett's esophagus, visible with WLI, NBI technology, and RDI technology, 18 years and older, were recruited.

Results

- Mean visibility scores for PVs were significantly higher with RDI technology compared to WLI and NBI technology (RDI technology; 3.4±0.4, WLI; 2.6±0.7 ($p<0.001$), NBI technology;2.3±0.6 ($p<0.001$)). (Figure 1)
- Color differences of PVs were significantly higher with RDI technology compared to WLI and NBI technology (RDI technology; 15.1±6.5, WLI; 7.74±4.96 ($p<0.001$), NBI technology; 10.43±5.0 ($p=0.006$)). (Figure 1)
- Both expert and trainee endoscopists recognized the improved visibility with RDI technology.

* Studies requiring validation.

Continued on next page.

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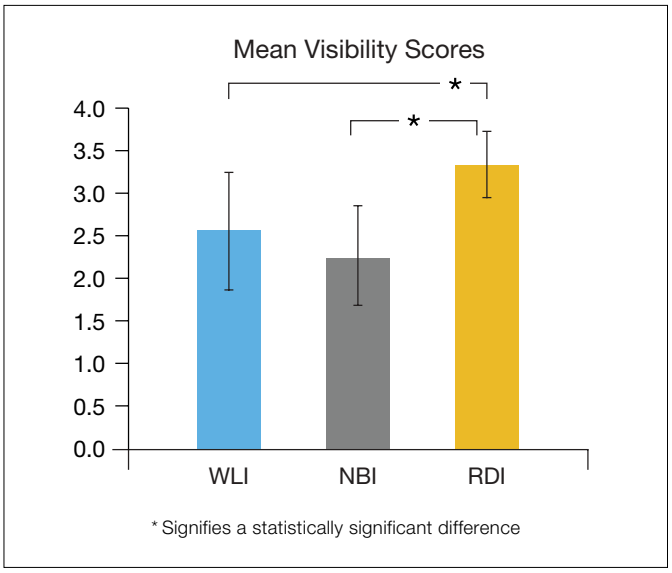
Note

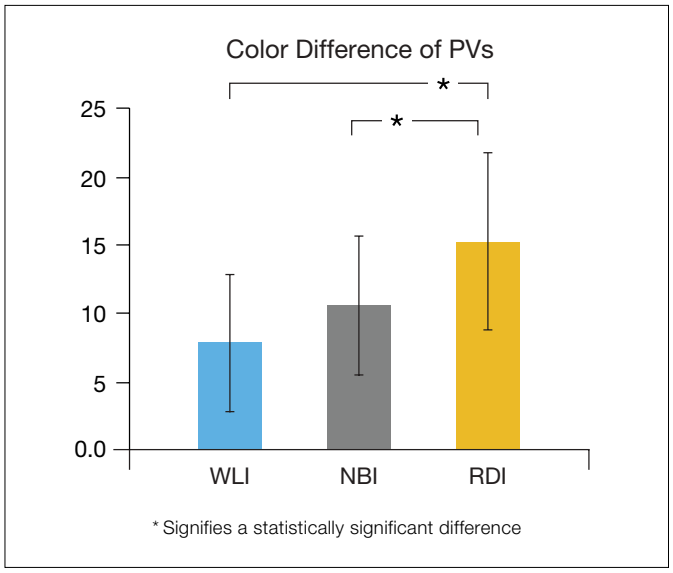
- This is the first report showing that RDI technology is superior to WLI and NBI technology in visualization of PVs.
- The study has the following limitations:
  - **Number of images:** Based on relatively small number of patients' images.
  - **Diagnosis of Barrett's esophagus:** Diagnosis was based on endoscopic findings without histological confirmation.
  - **Patients:** All patients had short-segment Barrett's esophagus (SSBE), with no cases of long-segment Barrett's esophagus (LSBE) included in the patient cohort.

Disclaimer

This study was assessing the impact of the NBI and RDI technologies which are 510(k) cleared in the United States as part of the CV-1500 video system center but GIF-XZ1200 gastroscope is not available in the United States. There is no time established as to when or if these products will be available in these markets, including the United States. The safety and effectiveness for these products and/or the use of some of these products has not yet been established in the United States market.

Figure 1: Mean Visibility Scores and Color Differences of PVs





Visibility was evaluated on a four-level scale: 4, excellent; 3, good; 2, fair; and 1, poor. The color difference (ΔE*) was analyzed between the most recognizable PV spots and surrounding areas with undetectable blood vessels.

For More Information on Narrow Band Imaging™ Technology Scan or Click the QR Code:

For More Information on Red Dichromatic Imaging™ Technology Scan or Click the QR Code:

Note: NBI™ and RDI™ technologies are not intended to replace histopathological sampling as a means of diagnosis.

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