

Computer-Aided Detection (CADe) and its effect on Adenoma Detection Rate (ADR) in a Single Tertiary Center

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INTRODUCTION

- Artificial intelligence (AI) with deep learning is revolutionizing patient care across medicine.
- In Gastroenterology, AI systems are helping endoscopists identify polyps in real-time.
- Several randomized control trials have tested the efficacy of Computer-Aided Detection (CADe) system in adenoma and polyp detection.
- We aimed to assess the impact of CADe on adenoma detection rates (ADR) at our institution.

METHODS AND MATERIALS

- This is a cross-sectional study that took place at a University Hospital between November 2021 and March 2022.
- We constructed a de-identified database with patients over the age of 45 that underwent screening and surveillance colonoscopies.
- Incomplete studies secondary to poor bowel preparation were excluded.
- We compared ADR, Polyp Detection Rate (PDR), total procedure time, withdrawal time, adenoma detected per colonoscopy (APC), and polyp detected per colonoscopy (PPC) between colonoscopies performed with and without CADe.

RESULTS

- A total of 64 colonoscopies were evaluated, 32 of them were done with CADe, and 32 without it.
- ADR was 53% with CADe and 43% without (odds ratio 1.45, 95% CI 0.5442–3.9013; p=0.4537).
- Polyp detection rate was 78% with CADe, 62% without CADe (odds ratio 2.1429, 95% CI 0.7118–6.4512; p=0.1753).
- Average total procedure time was 25 minutes 24 seconds (SD ± 7 minutes) with CADe, and 23 minutes 41 seconds without (SD ± 9 minutes) (p=0.42).
- Average withdrawal time was 16 minutes 43 seconds (SD ± 6 minutes) for CADe and 14 minutes 49 seconds (SD ± 8 minutes) without CADe (p=0.32).
- APC were 1.48 (SD ± 1.15) with CADe and 0.90 (SD ± 1.3) without CADe (p=0.48).
- PPC were 2 (SD ± 2.38) and 1.90 (SD ± 2.69) respectively (p=0.49).

Table 1. Comparison of results with and without CADe

	With CADe	Without CADe	P value
ADR	53%	43%	=0.4537
PDR	78%	62%	=0.1753
Procedure time	25 min 24 secs	23 mins 41 secs	=0.42
Withdrawal time	16 mins 43 secs	14 mins 49 secs	=0.32
APC	1.48	0.90	=0.48
PPC	2	1.90	=0.49

DISCUSSION

- Several randomized control trials have proven that the use of CADe increases ADR without increasing withdrawal time.
- In our study, ADR with CADe was found to be higher compared to an already good ADR without CADe.
- Procedure, as well as withdrawal time were mildly increased with the use of CADe.
- These results were not statistically significant, likely due to a low sample size.
- A larger study would be needed in order to show significant differences within the two groups.

Figure 1. GI Genius™ Intelligent Endoscopy Module | Medtronic



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