

Comparing the Right Colon Adenoma and Serrated Polyp Miss Rates with Colonoscopy Using Water Exchange and Carbon Dioxide Insufflation: Interim Analysis of a Multicenter Randomized Controlled Trial

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Conflict of Interest Disclosure

None



Background

- Post-colonoscopy colorectal cancers (PCCRCs) arise from missed lesions in the right colon.¹
- Pooled adenoma miss rate (AMR) = 26%.²
- Pooled serrated polyp miss rate (SPMR) = 27%.²
- Water exchange (WE) significantly decreases right colon AMR and SPMR in single-center randomized controlled trials (RCTs).^{3,4}

¹ le Clercq CM, et al. Gut 2014; ² Zhao S, et al. Gastroenterology 2019;

³ Cheng CL, et al. J Clin Gastroenterol 2021; ⁴ Ren G, et al. J Dig Liver 2021.



Aims of Study

- WE decreases AMR and SPMR in multicenter RCT
- **Primary outcomes:**
Right colon AMR and SPMR
- **Secondary outcomes:**
 - Adenoma detection rate (ADR) and adenoma per colonoscopy (APC)
 - Right colon SP detection rate (SPDR)

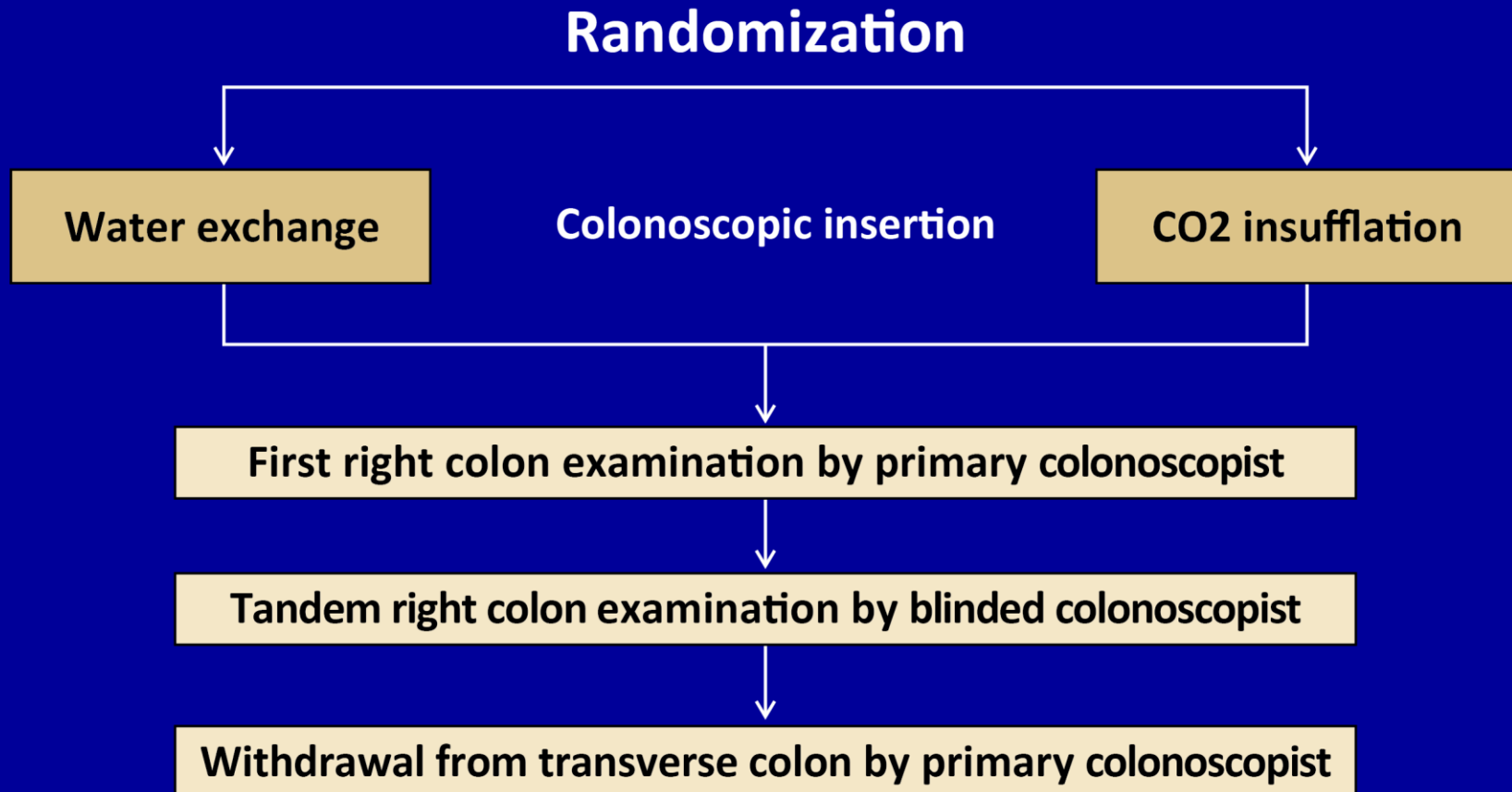


Inclusion and Exclusion Criteria

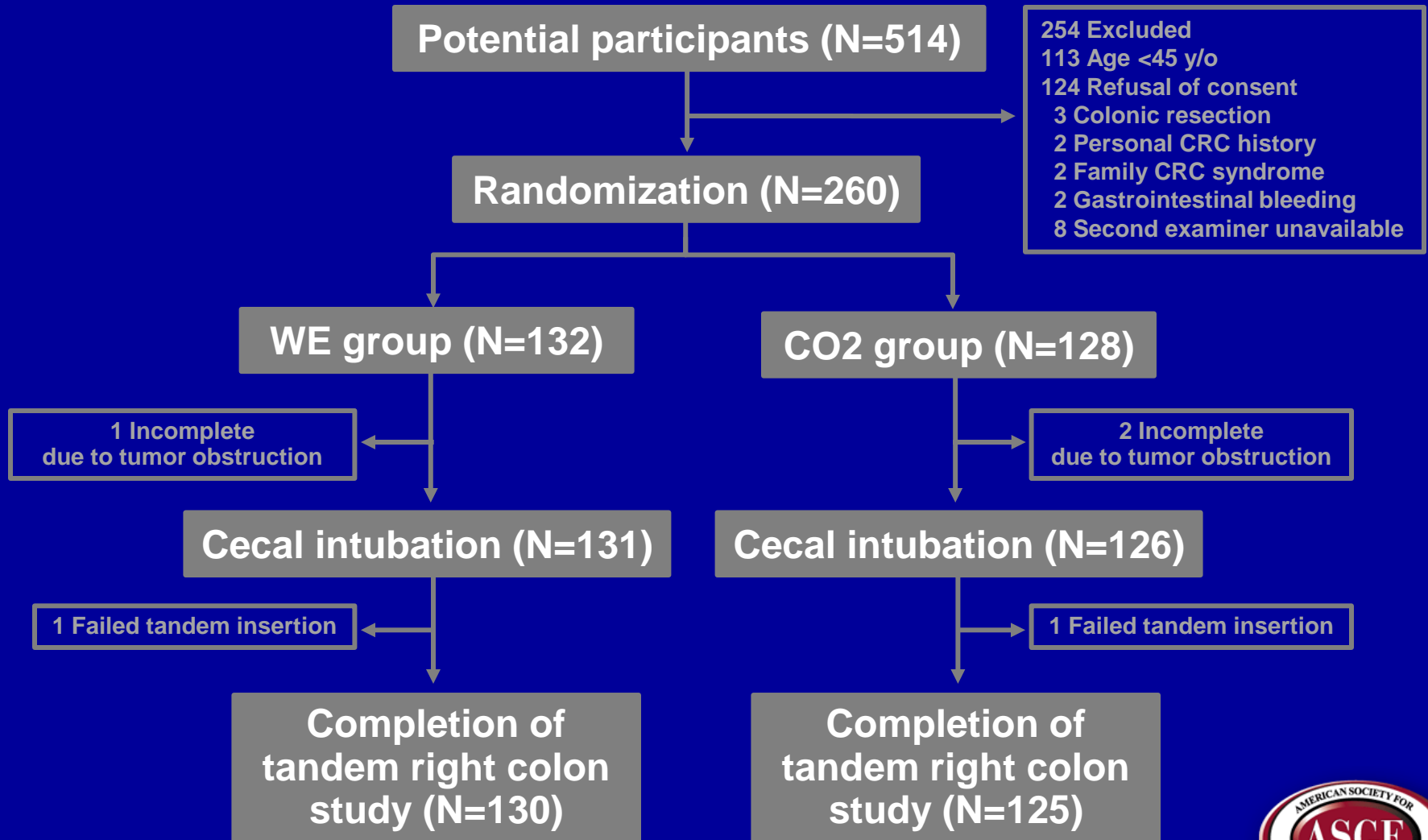
- **Inclusion criteria:**
Patients aged ≥ 45 years
- **Exclusion criteria:**
 - Colon resection
 - IBD
 - Hereditary CRC syndromes
 - Colon obstruction
 - GI bleeding
 - ASA ≥ 3
 - Refusal of consent



Randomization and Intervention



Study Flowchart



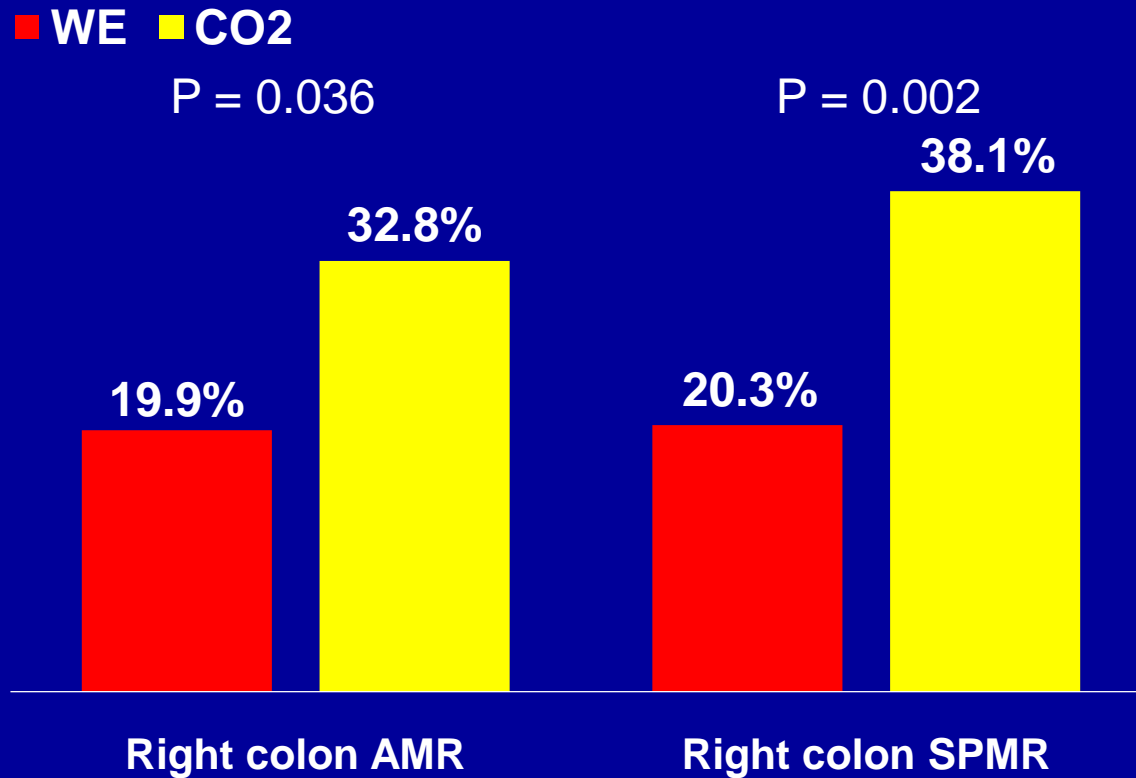
Results: Demographics and Indications

	WE group (N=132)	CO2 group (N=128)	<i>P</i> value
Male, n (%)	59 (44.7)	66 (51.6)	0.321
Age, mean (SD), years	58.8 (7.9)	58.6 (8.7)	0.851
Body mass index, mean (SD), kg/m ²	25.4 (4.2)	25.6 (3.5)	0.633
Family history of CRC*, n (%)	6 (4.5)	7 (5.5)	0.782
Active smoker, n (%)	19 (14.4)	21 (16.4)	0.732
Screening indication, n (%)	44 (33.3)	46 (35.9)	0.922
Surveillance indication n, (%)	71 (53.8)	67 (52.3)	
Positive FIT indication, n (%)	17 (12.9)	15 (11.7)	

*Family history in the first degree relative < 60 years.



Primary Outcomes: Right Colon AMR and SPMR

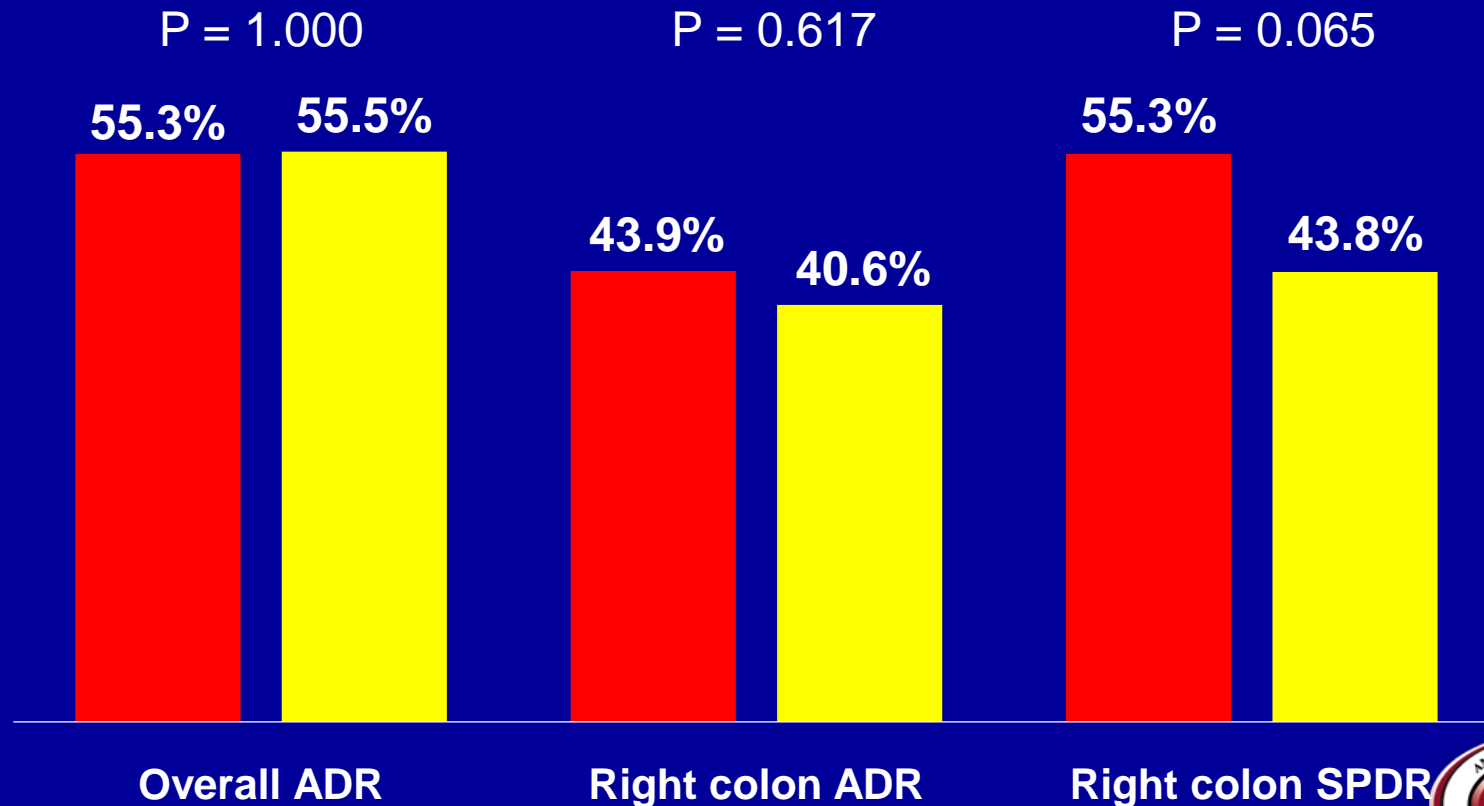


*Adenoma included tubular/villous adenoma; SP included hyperplastic polyp, SSA and TSA.

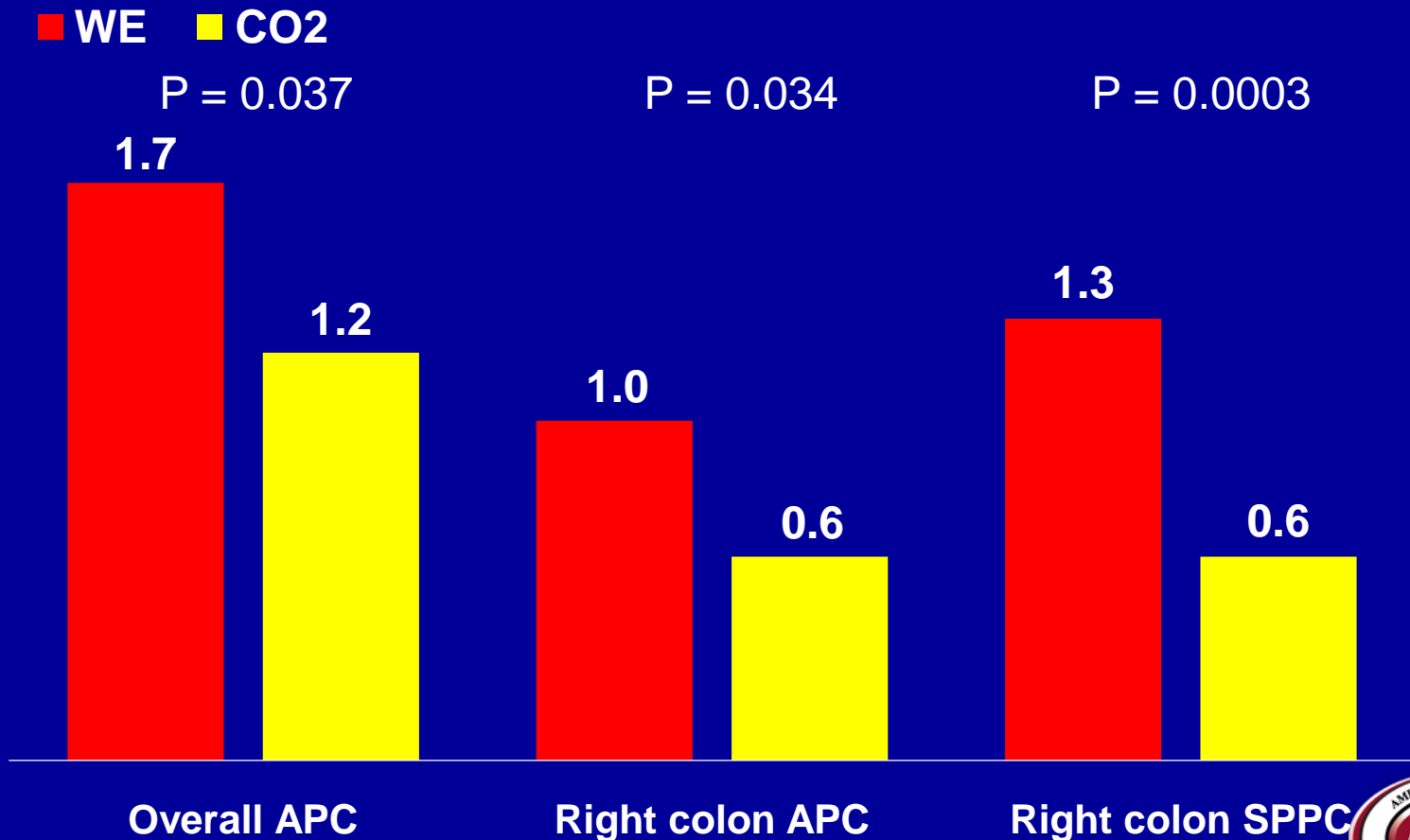


Secondary Outcomes: ADR and Right Colon SPDR

■ WE ■ CO2



Secondary Outcomes: APC and Right Colon SP per Colonoscopy (SPPC)



Insertion and Withdrawal Inspection Times

Mean time interval (SD)	WE (N=132)	CO2 (N=128)	P value
Insertion, min	15.0 (6.3)	9.9 (8.5)	<0.0001
Total withdrawal, min	24.8 (7.9)	28.3 (9.0)	0.001
Inspection during overall withdrawal, min	18.1 (5.9)	18.7 (6.2)	0.487
Inspection during first right colon examination, min	7.3 (2.9)	8.2 (2.6)	0.551
Inspection during tandem right colon examination, min	6.0 (2.5)*	6.5 (2.9)*	0.112
Total procedure, min	39.9 (10.8)	38.2 (13.1)	0.263

*Data for the patients with complete tandem examination.



Other Colonoscopic Parameters

	WE group (N=132)	CO2 group (N=128)	P value
Water infused during insertion, mean (SD), mL	1466 (864)	86 (358)	<0.0001
Water aspirated during insertion, mean (SD), mL	1418 (858)	193 (291To)	<0.0001
Total BBPS score, mean (SD)	7.9 (1.1)	7.4 (1.0)	0.0001
Right colon BBPS score, mean (SD)	2.5 (0.6)	2.2 (0.4)	<0.0001
Correct guess of insertion method by blinded examiner, n (%)	86 (65.2)*	53 (41.4)*	0.0002

*Data for the patients with complete tandem examination.
BBPS, Boston Bowel Preparation Scale



Strengths and Limitations

- **Strengths:**
 - Similar inspection time, high ADR in both groups
 - Multicenter study
- **Limitations:**
 - Inability to mask insertion method used
 - Inadequate masking of blinded examiners



Conclusions

WE significantly reduced right colon AMR and SPMR and increased right colon APC and SPPC in the current interim analysis of a prospective multicenter RCT.

