

Georgios Katinios

Överläkare

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ESGE
DAYS
2023

Advancing endoscopy
Forging connections

A HYBRID EVENT

Convention Centre Dublin
Ireland, April 20 - 22, 2023



The logo for ESGE Days 2023 is a white circle containing the text 'ESGE DAYS' in blue and '2023' in orange. The background of the top half of the image features a blue and yellow wavy pattern on the left and a photograph of medical professionals in blue scrubs on the right.

ESGE DAYS 2023

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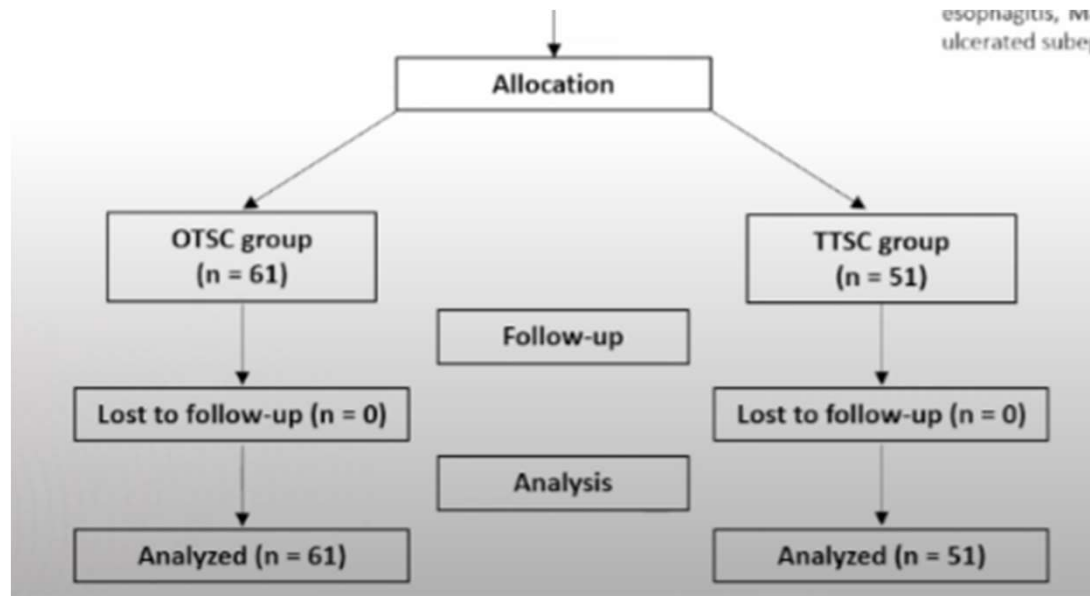
Convention Centre Dublin
Ireland, April 20 - 22, 2023

- ▶ Free papers - eposters
- ▶ Diskussioner om guidelines
- ▶ Fall diskussioner - Video sektioner
- ▶ Live endoskopi
- ▶ Hands-on training
- ▶ Meet the experts

Ulкусblödning : TTS eller OTS clips??



- ▶ Multi-center RCT
- ▶ 112 patienter med ulkus Forrest Ia, Ib, IIa, IIb



Higher efficacy of Over-the-scope clips compared to Through-the-scope clips for first-line endoscopic treatment of acute Peptic ulcer bleeding: results of an international, multicenter, randomized controlled trial (TOP Study)

Paola Soriani,* Paolo Biancheri,* Giuliano Francesco Bonura,* Tommaso Gabbani,* Lorenzo Dioscoridi, Gianluca Andrisani, Milena Di Leo, Enrique Rodriguez de Santiago, Simona Deliana,* Joachim Rainer,* Laura Ottaviani,* Mariagrazia Del Buono,* Rocco Amendolara,* Massimiliano Marino, Cesare Hassan, Alessandro Repici, Mauro Manno*

*Gastroenterology and Digestive Endoscopy Unit, Azienda USL Modena, Italy

Outcomes

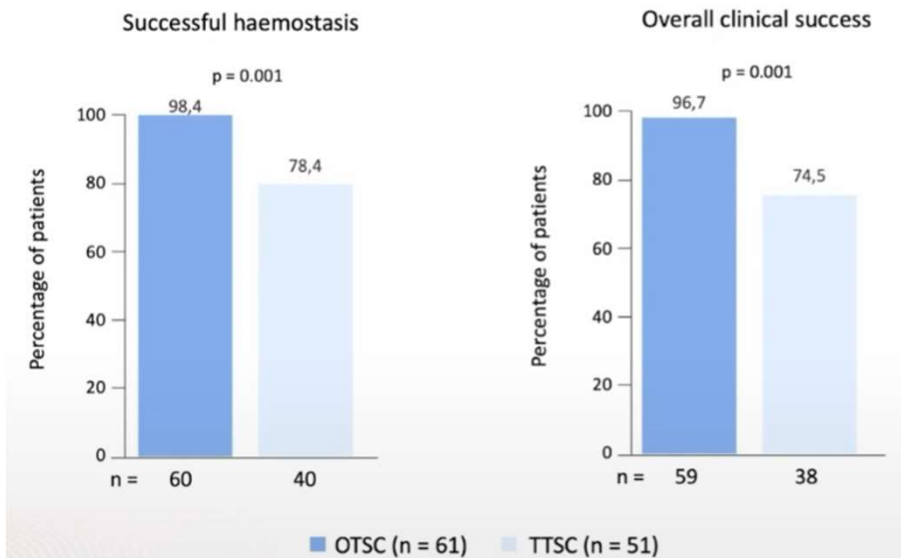
Primary outcome

- Successful haemostasis rate (absence of bleeding upon at least one minute observation after the assigned endoscopic therapy)

Secondary outcomes

- 30-day rebleeding rate
- Overall clinical success rate (combination of successful haemostasis rate and no evidence of 30-day rebleeding)
- Need for blood transfusion and number of red blood cell units transfused
- Length of hospital stay (days)
- 30-day mortality rate

Results-2



Results-3

Relative risk (RR) analysis of OTSC compared to TTSC, using a Generalized Linear Model with a log-binomial link

Outcome	RR	95% CI	p-value
Successful haemostasis	1.25	1.08-1.45	0.003
Overall clinical success	1.30	1.10-1.53	0.002
30-day rebleeding	0.42	0.04-4.53	0.473

- Treatment with OTSC showed a 25% higher likelihood of obtaining successful haemostasis compared to TTSC
- Similarly, the likelihood of achieving overall clinical success rate was significantly higher in the OTSC group


- ▶ OTSC bättre än TTS som första-linje behandling
- ▶ Men OTSC kräver ny intubation/svårighet med intubation/begränsad syn

Optik diagnos av SSA i kolon: Vittljus vs NBI

- ▶ Multicenter randomiserad prospektiv studie
- ▶ 370 patienter
- ▶ 1:1 randomisering HDWL:NBI

- ▶ NBI: WASP classification
- ▶ HDWL: ingen användning av WASP

- ▶ Primary outcome: Accuracy of optical diagnosis of SSA



Narrow-Band Imaging (NBI) vs. high definition white light endoscopy (HDWL) for optical diagnosis of serrated adenoma in the colorectum: a prospective randomized multicenter trial

C. Kalhoff¹; A. Poszler²; B. Haller¹; S. Von Dellus³; R.M. Schmid⁴; J. Peveling-Oberhag⁵; M. Abdelhafez¹; J. Albert⁵; C. Ansprenger²; P. Klare⁶, 1

1 Klinikum rechts der Isar der Technischen Universität München, München, Germany; 2 Hospital Agatharied GmbH, Hausham, Germany; 3 RoMed Klinik Rosenheim Medizinischer Klinik II, Rosenheim, Germany; 4 Klinikum rechts der Isar der Technischen Universität München Klinik für Innere Medizin II, Munich, Germany; 5 Robert-Bosch-Hospital, Stuttgart, Germany; 6 Oberschwabenklinik, Klinik für Innere Medizin I, Ravensburg, Germany


Results

- 370 patients were included
- 498 polyps were resected in total
- NBI arm: 251 polyps; HDWL arm: 247 polyps
- ADR 46,0% (HDWL) / 41,3% (NBI) (p=0,387)

	HDWL	NBI	p-value
Accuracy (%)	89,5	90,4	0,720
Sensitivity (%)	66,7	71,0	0,876
Specifity (%)	94,5	93,2	0,944
NPV (%)	95,8	95,8	0,976
PPV (%)	54,1	59,5	0,836

- Vittljus likvärdig NBI
- Låg sensitivitet men bra specificitet

AI i kapselenteroskopi (misstänkt tunntarmsblödning)



**Artificial Intelligence-based
small bowel capsule endoscopy
reading
in patients with suspected small
intestinal bleeding**

S.Picirelli (Brescia, ITALY), C. Ferrari (Brescia, ITALY), E.Toth (Malmö, SWEDEN), B.González-Suárez (Barcelona, SPAIN), M.Keuchel (Hambourg, GERMANY), M.E. McAlindon (Sheffield, UK), A. Finta (Székesfehérvár, HUNGARY), A.Rosztóczy (Szeged, HUNGARY), X.Dray (Paris, FRANCE), G.Costamagna (Rome, ITALY), D.Salvi (Brescia, ITALY), M.E.Riccioni (Rome, ITALY), R.Benamouzig (Bobigny, FRANCE), A.Chattree (South Tyneside, UK), A.Humphries (London, UK), J.C.Saurin (Lyon, FRANCE), E.Despott (Londres, UK), A.Murino (London, UK), G. WurmJohansson (Malmö, SWEDEN), A.Giordano (Barcelona, SPAIN), P.Baltes (Hambourg, GERMANY), R.Sidhu (Sheffield, UK), M.Szalai (Székesfehérvár, HUNGARY), K.Helle (Szeged, HUNGARY), T.Nowak (Hambourg, GERMANY), C.Hassan (Rome, ITALY), R. Lin (Wuhan, CHINA), C.Spada (Rome, ITALY)

Aims

Primary aim

- **Non-inferiority** of AI-assisted vs standard CE reading in the detection (**diagnostic yield**) of small bowel lesions (P1+P2) in a **per-patient** analysis

Secondary aims

- **Superiority** of AI-assisted vs Standard CE reading in the detection (**diagnostic yield**) of small bowel lesions (P1+P2) in a **per-patient** analysis
- Assessment of **performance metrics** (sens., spec., PPV, NPV, LDR ..)
- **Sensitivity** of the AI software, regardless of the readers' capacity
- **Mean reading time** (small bowel or entire GI tract CE examination) in AI-assisted vs Standard reading

Materials and Methods

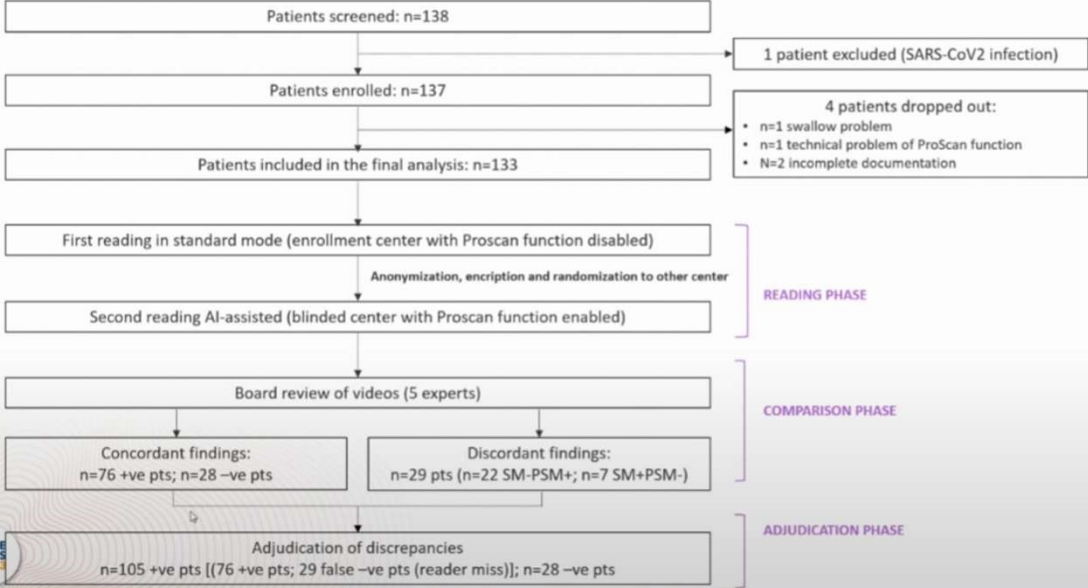
ArtIC Study



ESGE

- Study design: multicenter, prospective trial
 - 14 European centers, 7 nations
- Study period: Feb 2021 – Jan 2022
- Inclusion criteria:
 - Patients with suspected small bowel bleeding (standard of care, after negative upper and lower endoscopy)
 - Hb cut-off male: <13 g/dL, female: <11 g/dL
 - France: negative pregnancy test
- Exclusion criteria:
 - Common contraindications to SBCE (dysphagia, obclusive symptoms, known stenosis, scheduled IRM, ..)

Materials and Methods



Lesions classified according to the Saurin Classification

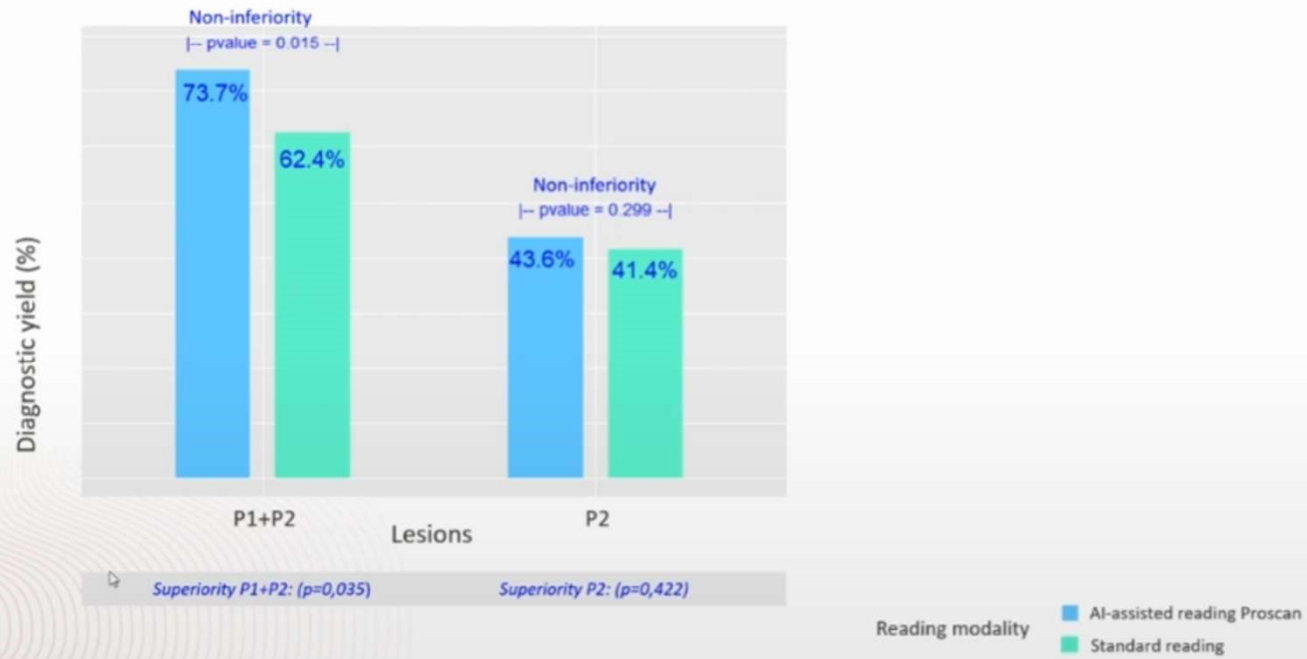
Classification of Saurin – modified for protocol		
P0	Nodules with no mucosal breaks (included xantomas, xantelasmas, lypomas), lymphangiectasias, visible submucosal veins, diverticula without blood	No bleeding potential
P1	Mucosal erosions, mucosal red spots, erythematous mucosa, polyps	Uncertain bleeding potential
P2	Angiectasia, venous angioma, ulcers, tumors/suspected masses, intestinal varices, blood, or clot	High bleeding potential

Saurin et al, Endoscopy 2003

Results

133 patients included in the final analysis (73 females, mean age 66.5 ± 14.4)

Complete SB examination: 112/133 patients (84.2%)



Results

Diagnostic performances

Performance measures (%)	P1+P2 lesions			P2 lesions		
	Standard	AI-assisted	p value	Standard	AI-assisted	p value
Sensitivity	79.0	93.3	0.005	84.6	89.2	0.603
Specificity	100.0	100.0	1	100.0	100.0	1
PPV	100.0	100.0	1	100.0	100.0	1
NPV	56.0	80.0	0.039	87.2	90.7	0.668
Diagnostic accuracy	83.5	94.7	0.006	92.5	94.7	0.616

Miss rates of reading modalities

	Standard	AI-assisted	p value
Miss rate for P1+P2 lesions	21.0% (n=22/105)	6.6% (n=7/105)	p<0.005
Miss rate for «P2 only» lesions	15.4% (n=10/65)	10.8% (n=7/65)	p=0.603

ESGE DAYS


Adjudication Phase
Review of the Board
ProScan did NOT miss findings!
100% ProScan sensitivity



	Standard reading	AI-assisted Proscan	p
Reading time Small bowel	33 minutes ± 23	4 minutes ± 3	< 0,001
Reading time All GI tract	44 minutes ± 26	6 minutes ± 5	< 0,001

- ▶ **AI assisterad:** Snabbare, bättre diagnostisk prestanda, åtminstone lika bra/bättre i detektering av P1+P2 lesioner.

LCI (TXI) vs HD-WL i post-EMR ärr evaluering

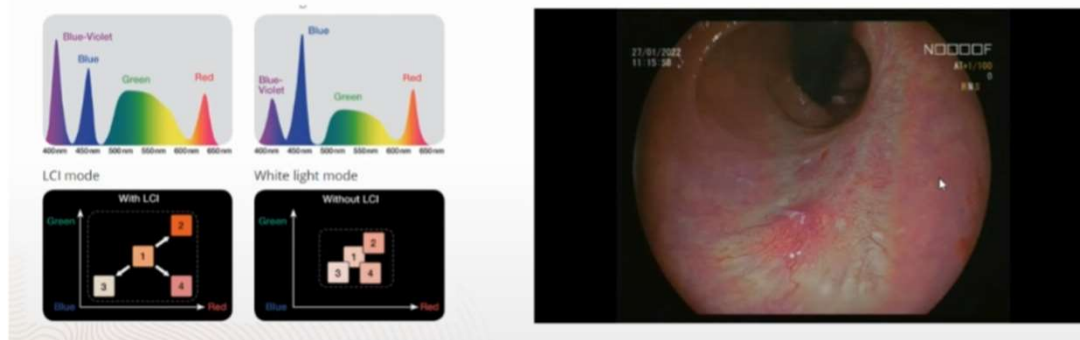


Linked-color imaging versus high-definition white light endoscopy for evaluation of post-polypectomy scars of non-pedunculated lesions. LCI-Scar study

Oswaldo Ortiz Zúñiga
Hospital Clinic Barcelona

Introduction

- Linked Color Imaging (LCI) is a Virtual chromoendoscopy technique improves polyp detection in average and high-risks populations.
- LCI for interrogation of post-polypectomy scars have never been evaluated.



Methods

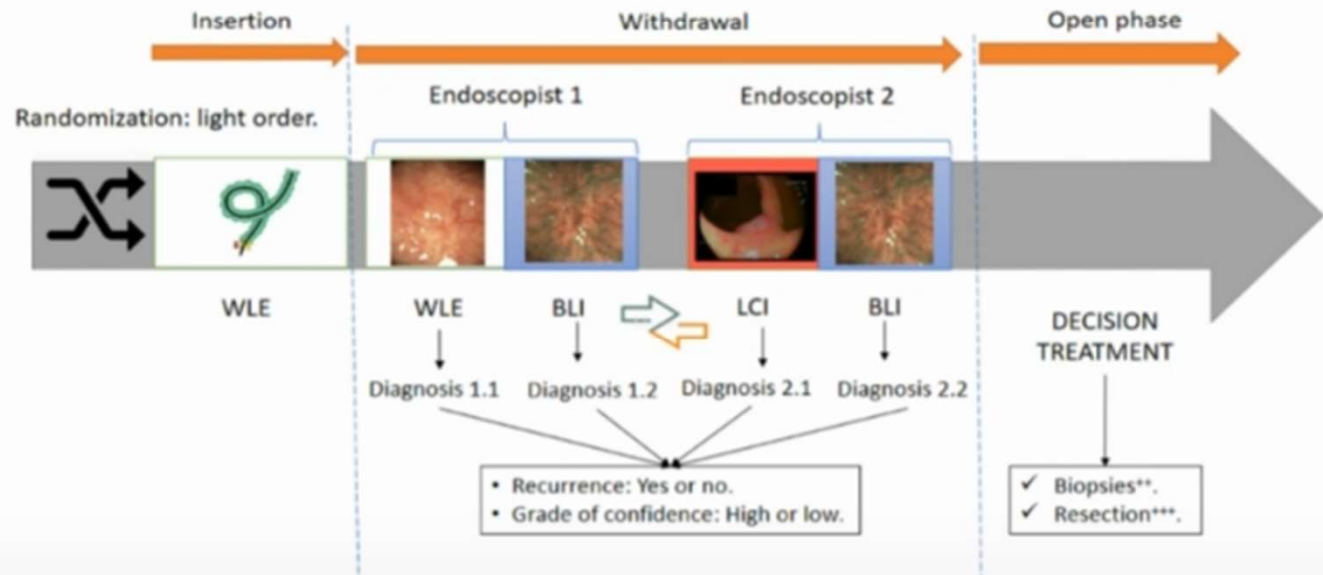
Inclusion criteria:

- Adult patients undergoing surveillance colonoscopy after p-EMR of lesions $\geq 15\text{mm}$



Exclusion criteria

- IBD.
- No informed consent.

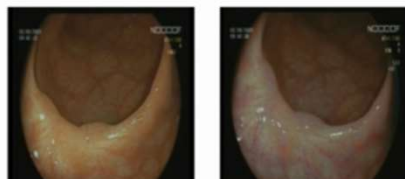


- Cross-over, single center, RCT
- Five endoscopists.
- Up to 3 scars per patient.

Results

	LCI	WLE	LCI plus BLI	WLE plus BLI
Sensitivity	54/56 96.4% (88-99)	50/56 89.3% (79-95)	54/56 96.4% (88-99)	51/56 91.1% (81-96)
Specificity	105/117 89.7% (83-94)	106/117 90.6% (84-95)	106/117 90.6% (84-95)	105/117 89.7% (83-94)
Positive predictive value	54/66 81.8% (71-89)	50/61 81.9%-(71-90)	54/65 83.1% (72-90)	51/63 81.0% (70-89)
Negative predictive value	105/107 98.1% (93-99)	106/112 94.6% (89-98)	106/108 98.2% (94-99)	105/110 95.5% (90-98)
Accuracy	159/173 91.9% (87-95)	156/173 90.2% (85-94)	160/173 92.5% (88-96)	156/173 90.2% (85-94)

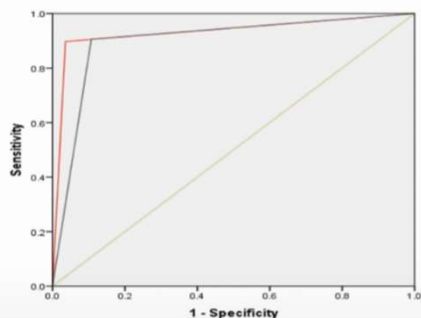
Agreements: LCI/WLE 166/173 (95,9%)



Disagreements

- ↳ WLE correct/LCI incorrect:
0 recurrences y +2 normal.
- ↳ LCI correct/WLE incorrect
+4 recurrences y +1 normal

Results



	LCI	WLE
Positive LR	9.4 (95% CI 5.49-16)	9.5 (95% CI 5.37-17)
Posterior probability odds	82% (95% CI 72-88)	82% (95% CI 72%-89%)
Negative LR	0.04 (95%CI 0.01-0.16)	0.12 (95% CI 0.06-0.25)
Posterior probability odds	2% (0-7%)	5% (95% CI 3%-11%)

ROC curve of LCI (red) and WLE (grey) for recurrence detection on post-EMR scars.

LCI 0.93 (CI 95% 0.89-0.97) VS WLE 0.89 (CI 95% 0.84-0.96); p<0.01

- ▶ LCI bättre än WD-LE±BLI för post-EMR ärr evaluering

Recidiv efter p-EMR av stora lesioner

Methods

- Retrospective analysis
- Consecutive colorectal EMR procedures
- 2 referral hospitals (university center and large community hospital)
- 3 expert endoscopists
- 2011-2020
- Lesions:
 - Large polyps ≥ 30 mm
 - Non-pedunculated
 - Absence of optical features suggestive for submucosal invasion



Long-Term Outcome After Endoscopic Mucosal Resection For Complex Large Lateral-Spreading Colorectal Lesions In A Large Dutch Cohort

V.R.H. Van der Voort, P. Didden, L.M.G. Moons, F.P. Vleggaar, M.P. Schwartz

University Medical Center Utrecht, The Netherlands
Meander Medical Center Amersfoort, The Netherlands

- ▶ 682 p-EMR >30mm (95,3% success rate)
- ▶ **N=54 adenocarcinoma (7,9%)**
- ▶ 628 ingår i studien

Baseline characteristics of 716 lesions

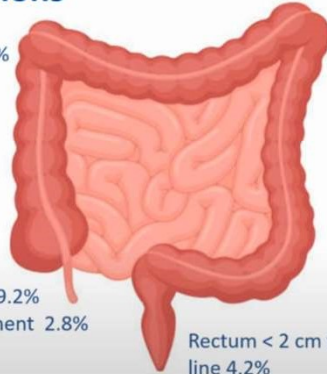
Sex, Male n (%)	431 (60.1%)
Age, mean, years (SD)	68.3 (SD±9)
Lesion size, median, in mm (IQR)	40 (35-55)
SMSA score, n (%)	
SMSA 3	63 (8.8%)
SMSA 4	654 (91.2%)
Paris classification	
Flat: 0-IIa, IIb, IIa+IIc	305 (42.5%)
Sessile: 0-Is, Isp, IIa+Is	412 (57.5%)
Lifting	
Complete	580 (80.9%)
Suboptimal	136 (19.0%)
Adjunctive treatment, n (%)	148 (20.6%)
Adjuvant treatment, n (%)	506 (70.6%)

Location of Lesions

Hepatic flexure 8.5%

Splenic flexure 3.8%

Proximal location
63.9%

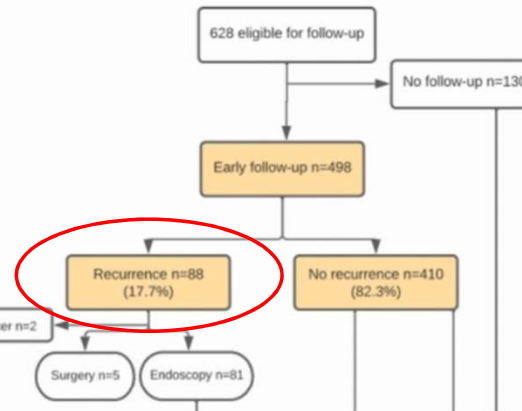


Ileocecal valve involvement 9.2%
Appendiceal orifice involvement 2.8%

Rectum < 2 cm from dentate
line 4.2%

0-12 months

Median follow-up time 7
months (IQR 6-8)

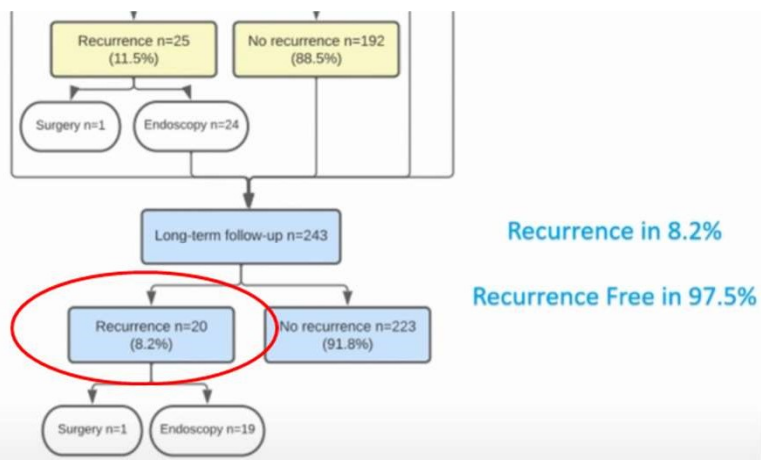


Associated with Early Recurrence:

- ✓ Larger polyp size > 60 mm (OR 5.14, 2.23-11.88 95% CI, p=0.000)
- ✓ Adjuvant ablation (OR 0.47, 0.26-0.86 95% CI, p=0.014)

≥ 30 months

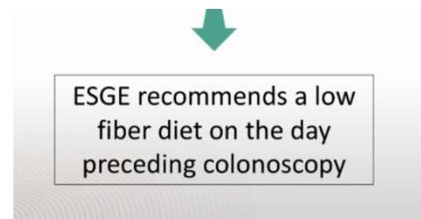
Median follow-up time 48 months (IQR 38-68)



Conclusion

- Large cohort of EMR-procedures for large, complex lateral-spreading colorectal lesions.
- Almost 40% > 2.5 years follow-up available: 8.2% recurrent adenoma
- At long term follow-up 97.5% polyp-free after (repeated) endoscopic treatment.

Diet med låg resthalt(LRD) dagen innan koloskopi ??



Restrictive diets are not necessary with current bowel cleansing standards. Results of a non-inferiority clinical trial

Dr. Salvador Machlab
Digestive Endoscopy Unit, Hospital Parc Taulí,
Universidad Autónoma de Barcelona

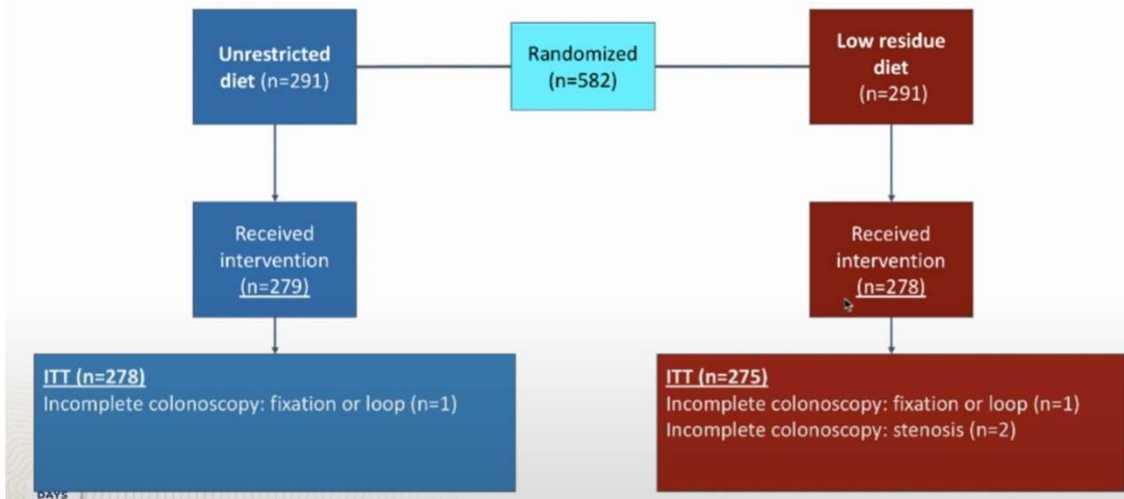
A dark blue banner with a white circular logo on the left containing the text "ESGE DAYS 2023". To the right of the logo is the main text in white. Below the main text is the speaker's name and affiliation.

Study design

- Non-inferiority, multicenter (5 Spain), parallel groups randomized trial.
- Randomization balanced for risk of inappropriate cleansing risk (Dik score).
- δ : 5% α : 5% Power: 80% Sample size: **472**

- Fit + morning population screening colonoscopies
- Split preparation with PEG+Asc 1L + bismacodil in case of risk of inappropriate cleansing

Sample characteristics

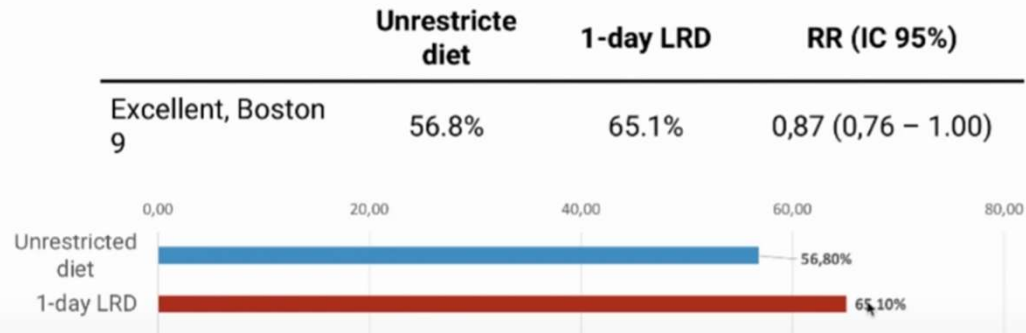


Results: Main outcome

Non-inferiority

Main outcome	Unrestricted diet	Low residue diet	No-inferiority risk difference	95% One-sided CI	RR (IC95%)
Adequate cleansing BBPS %	96,40%	97,80%	0,014	0,041	0.99 (0.96 - 1.01)

Results: Proportion of Boston 9



Results: Tolerability

	Unrestricted diet	1-day LRD	Relative Risk (95% CI)
Good diet tolerability	94.7%	83.2%	1.14 (1.07 – 1.21)
Good cleansing solution tolerability	67.8%	67.9%	1.00 (0.89 – 1.12)
Preferred to be assigned to the other study group	3.6%	11.3%	0.32 (0.16 – 0.64)

In conclusion...

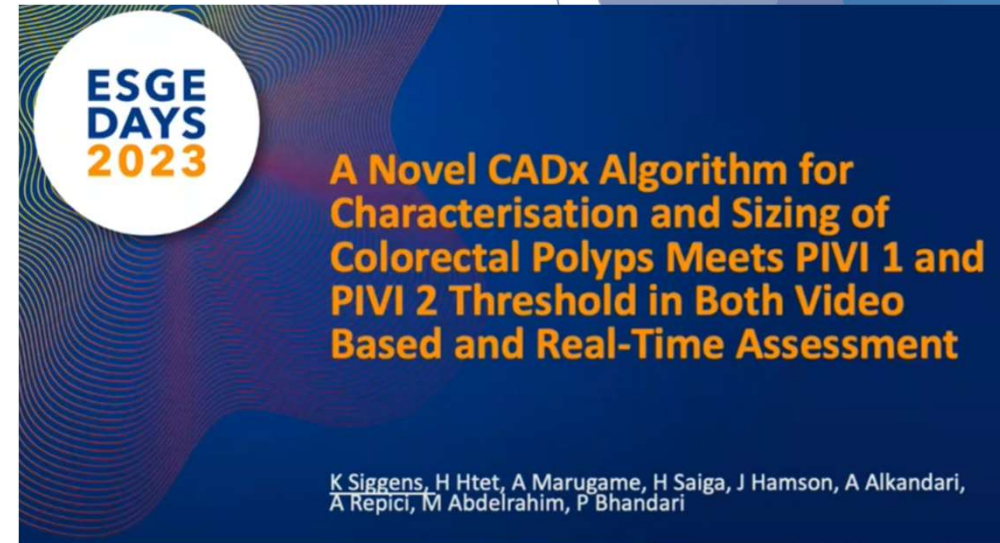
- Regular diet is no inferior to 1-day LRD for adequate cleansing
- It is more tolerable and preferred by patients
- There is no effect on the colonoscopy performance
- These results should be validated outside of the screening program and with other cleansing products.

AI för karakterisering och mätning av kolorektala polyper

- ▶ Resect and discard
- ▶ Diagnose and leave

PIVI

1. For a technology to be used to guide the decision to leave suspected rectosigmoid hyperplastic polyps 5 mm or smaller in place (without resection), the technology should provide a 90% or greater negative predictive value (NPV) (when used with high confidence) for adenomatous histology.
2. For colorectal polyps 5 mm or smaller to be resected and discarded without pathologic assessment, endoscopic technology (when used with high confidence) used to determine histology of these polyps, when combined with the histopathologic assessment of polyps larger than 5 mm, should provide 90% or greater agreement in assignment of post polypectomy surveillance intervals when compared with decisions based on pathology assessment of all identified polyps.



Phase 1: video based analysis

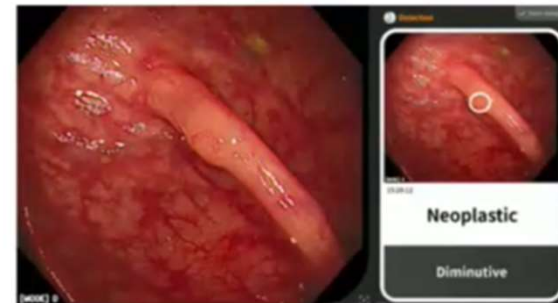
- Dedicated algorithm for CADx
- Categorise polyps according to:
 - Histology (neoplastic vs non-neoplastic)
 - Size (diminutive vs non-diminutive)
- Sizing in WLI only
- 292 polyps
 - 202 neoplastic
 - 90 non-neoplastic

	Video based CADx (n=292)		Video based sizing (non-diminutive)
	WLI	IE	
Sensitivity (%)	86.14	91.76	93.40
Specificity (%)	85.56	78.75	79.03
Accuracy (%)	85.96	87.79	93.40
NPV (%)	73.33	80.77	95.45

Phase 2: Real-time performance

- Real-time use in 116 polyps
 - 66 neoplastic
 - 50 non-neoplastic
- Concordance for sizing between endoscopist and AI 84.61%

	Real-time CADx (n=116)	
	WLI	IE
Sensitivity (%)	89.20	90.50
Specificity (%)	82.70	94.10
Accuracy (%)	87.10	92.10
NPV (%)	86.00	88.90



Performance for diminutive polyps

Diminutive polyp CADx performance				
	Video based CADx (n=186)		Real-time CADx (n=49)	
	WLI	IE	WLI	IE
Sensitivity	83.46	87.72	84.00	87.50
Specificity	81.13	71.74	87.50	100.0
Accuracy	82.80	83.13	85.71	93.75
NPV	66.15	70.21	84.00	89.89

Real-time performance meets PIVI threshold

PIVI 1

- Real time NPV for diminutive rectosigmoid hyperplastic polyps for adenomatous diagnosis 93.3%

PIVI 2

- 97.2% concordance between surveillance intervals (BSG guidelines) based on histology versus AI diagnosis for diminutive polyps and histology for non-diminutive

Slutsats

- ▶ AI baserad karakterisering och mätning är här och nu!!!
- ▶ Överträffar PIVI kriterier och skulle kunna implementeras i klinisk praxis efter ytterligare prospektiva studier.

AI i detektion av gastriska lesioner vid kapselenteroskopi

Deep Learning and Minimally Invasive Endoscopy: Automatic Detection of Pleomorphic Gastric Lesions in Capsule Endoscopy

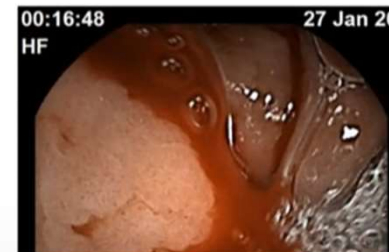
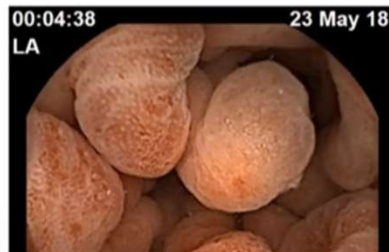
M. Mascarenhas¹; T. Ribeiro¹; A. João¹; J. Ferreira²; P. Marílio Cardoso¹; P. Andrade¹; C. Hélder¹; M. Guilherme¹

1-São João University Hospital Center, Porto, Portugal;

2-Faculty of Engineering - University of Porto, Porto, Portugal

Introduction

- Our aim was to develop the first deep-learning model for the detection of pleomorphic gastric lesions in wireless capsule endoscopy (WCE).



Methods

- Our group developed a CNN-based algorithm for the automatic detection of pleomorphic gastric lesions, including vascular lesions (angiectasia, varices, and red spots), protruding lesions, ulcers, and erosions.
- 12873 gastric images from three different CE devices (PillCam Crohn's; PillCam SB3; OMOM HD capsule endoscopy system) were used from the construction of the CNN.
- The images were divided into a training (split for 3-fold cross-validation) and testing dataset in a patient-split manner. The model's output was compared to a consensus classification by three experienced WCE gastroenterologists.



Results

- The trained CNN had a 97.4% sensitivity, 95.9% specificity, PPV and NPV of 95.0% and 97.8% for gastric lesions, with 96.6% overall accuracy.
- The CNN had an image processing time of 115 images per second.

Discussion

- Work main strengths:
 - Pioneer CNN capable of detecting multiple lesions in gastric mucosa;
 - Trained and validated in multi-brand images;
 - Outstanding performance metrics.
- Limitations:
 - Retrospective study;
 - No clinical validation study developed;

Tack för uppmärksamheten

 **ESGE DAYS 2024**

April 25 – 27, 2024