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Effect of Magnetic Endoscopic Imaging (ScopeGuide®) by Novice Endoscopists During Colonoscopy

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Background: In accordance with colorectal cancer screening programs, screening colonoscopy is commonly performed. There are several methods that improve performance of colonoscopy and increase adenoma detection rate (ADR). This study aimed to evaluate the efficacy of magnetic endoscopic imaging (MEI) in improving performance of colonoscopy and detecting polyp by novice endoscopists. Methods: Consecutive patients referred for a screening colonoscopy between July 2014 and August 2014 were included. The patients were randomly allocated to examination with (MEI group) or without (conventional group) the use of MEI. Colonoscopy was performed by novice endoscopists (performed <50 colonoscopes). Primary outcomes were polyp detection rate (PDR) and ADR, and secondary outcomes were rate and time of cecal intubation (CI). Results: 121 patients underwent screening colonoscopy, 60 patient in MEI group and 61 patients in conventional group. Baseline characteristics showed no difference between two groups in terms of sex and age. The PDR (43.3% vs 44.3%, $P=0.918$) and ADR (31.6% vs 22.9%, $P=0.282$) were not different between the two groups. CI rate of the MEI group was significantly higher than that of the conventional group (86.7% *vs* 70.5%, $P=0.048$). CI time of the MEI group was significantly shorter than that of the conventional group. (Median 10:27 [IQR 6:30-19:02] vs 15:52 [9:46-22:31], $P=0.017$). Conclusion: There was no difference in polyp and adenoma detection rate between MEI group and conventional group. MEI can increase cecal intubation rate and shorten cecal intubation time when novice endoscopists perform colonoscopy. To apply in practice, more studies are needed in the future.

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Nicevis - Results of a Randomised Controlled Trial of Simeticone and N-Acetylcysteine As a Pre-Procedure Drink to Improve Mucosal Visibility During Diagnostic Gastroscopy

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Introduction: Despite advances in endoscope technology there is still a significant miss rate of neoplastic lesions during gastroscopy. Mucosal views during gastroscopy are frequently impaired by residual bubbles and mucus. Methods: We conducted a randomised controlled trial in 126 patients attending for routine outpatient gastroscopy. Trial ref: EudraCT Number 2013-001097-24. Subjects were randomised in a 1:1:1 ratio to receive a pre-procedure drink of water, Simeticone and n-acetylcysteine (Group A), water alone (Group B) or no preparation (Group C). Study endoscopists were blinded to group allocation. 4 digital images were taken at predefined locations during the procedure - lower oesophagus, upper body, antrum & fundus. Images were then collated and rated for mucosal visibility (MV) using a 4 point scale (1 = best, 4 = worst) by 4 separate experienced endoscopists who were also blinded to group allocation. The primary outcome measure was mean mucosal visibility score. Secondary outcome measures were total procedure duration and volume of fluid flush required during the procedure to achieve adequate mucosal views. Results: Results are shown in table 1. There were no significant differences between groups in age, gender or indication for endoscopy. The mean MV score for group A was significantly better than for group B and group C ($p < 0.001$ for both comparisons). There was no significant difference in mean MV score between groups B and C ($p=0.541$). Interobserver agreement of MV scores was good (mean kappa 0.464).Mean volume of flush required during gastroscopy to achieve adequate mucosal views was significantly lower in group A than group B ($p=0.001$) and group C ($P<0.001$). There was no significant difference in mean flush volume between groups B & C ($p=0.583$). Procedure duration did not differ significantly between any groups. Subgroup analysis of MV scores at each location demonstrated significantly better mucosal visibility in group A compared to group B and group C at all locations ($p<0.0025$ for all comparisons). There were no adverse events related to the trial medication. Conclusions: A pre-procedure drink containing Simeticone and n-acetylcysteine significantly improves mucosal visibility during routine gastroscopy. It also significantly reduces the need for flushes during the procedure to achieve adequate views. This may improve detection of early neoplasia and other pathology during gastroscopy. Subanalysis of separate locations demonstrates significant benefit in both the lower oesophagus and stomach, demonstrating potential benefit in Barrett's esophagus surveillance procedures.

Table 1. Primary and secondary outcomes by study group

Group	A - Simeticone/ NAC	B - Water	C - no preparation
Mean Mucosal Visibility (MV) Score (range 1-4)	1.35	2.11	2.21
Mean Procedure duration (sec)	309	352	334
Mean Volume of flush (ml)	2.0	31.5	39.2

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FICE Endoscopy Diagnostic Accuracy by Applying OLGA and OLGIM Systems

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Introduction: Patients with chronic atrophic gastritis (AG) and/or intestinal metaplasia (IM) should be considered to be at higher risk for gastric adenocarcinoma. Endoscopic diagnosis of gastric mucosal atrophy and IM is not simple. This study aimed to evaluate the flexible spectral imaging color enhancement (FICE) endoscopy diagnostic accuracy by applying Operative Link on Gastritis Assessment (OLGA) and Operative Link on Gastric Intestinal Metaplasia (OLGIM) systems. Methods: We included 224 consecutive patients from January 2013 to June 2014 aged over 50 (male 28%, average age 61, range 50-87) undergoing FICE (gastroscope EG-590WR) endoscopy at Digestive diseases centre GASTRO. Targeted biopsies were obtained at the locations of visually suspected lesions. If no changes were determined by FICE, random biopsies were performed in antrum, incisura and corpus according to Sydney-Houston protocol. Histology assessment was performed according to the updated Sydney System. Both OLGAand OLGIM were used and individuals classified accordingly. One trained general (S.I.) and two expert gastrointestinal pathologists (I.L.K. and D.J.), blinded to all patient endoscopic or clinical information, independantly assessed all tissue sections. For all disconcordant cases, a consensus on the atrophy and IM scores was subsequently reached. Histological assessment was considered the gold standard to accuracy estimates. Results: The overall prevalence of endoscopically and histologically diagnosed AG and IM cases were 40% and 76% , 32% and 53% respectively. FICE endoscopy diagnostic accuracy measurements by applying OLGA and OLGIM systems shown in Tables 1 and 2. Conclusion: FICE endoscopy yielded favourable results in the endoscopic diagnosis of advance stages of gastric atrophy and/or intestinal metaplasia (OLGA/OLGIM III/IV) for unselected patients.

FICE endoscopy diagnostic accuracy measurements by applying OLGA system

OLGA stage	Sensitivity, % (95% CI)	Specificity, % (95% CI)	Positive predictive value, % (95% CI)	Negative predictive value, % (95% CI)
I	33.33 (24.44-43.20)	90.91 (80.03 -96.95)	87.5 (73.18-95.77)	41.67 (32.74 -51.02)
II	70,59 (52.52 -84.88)	90.91 (80.03 -96.95)	82.76 (64.21- 94.09)	83.33 (71.47 -91.69)
III	80.00 (51.91-95.43)	90.91 (80.03 -96.95)	70,59 (44.05 -89.58)	94,34 (84.32 -98.75)
IV	93.33 (67.98 -98.89)	90.91 (80.03 -96.95)	73,68 (48.80 -90.75)	98,04 (89.51 -99.67)

FICE endoscopy diagnostic accuracy measurements by applying OLGIM system

OLGIM stage	Sensitivity, % (95% CI)	Specificity, % (95% CI)	Positive predictive value, % (95% CI)	Negative predictive value, % (95% CI)
I	32.20 (20.63-45.64)	91,59 (84.63 -96.07)	67,86 (47.65 -84.09)	71,01 (62.69 -78.42)
II	67.86 (47.65 -84.09)	91,59 (84.63 -96.07)	67,86 (47.65-84.09)	91,59 (84.63 -96.07)
III	76.47 (50.10 -93.04)	91,59 (84.63 -96.07)	59,09 (36.37-79.25)	96,08 (90.25 -98.90)
IV	92.31 (63.90 - 98.72)	91,59 (84.63 -96.07)	57,14 (34.04 -78.14)	98,99 (94.48 -99.83)