Comparison of newer colonoscopy devices with standard forward viewing (SFV) high definition colonoscopes in daily practice

M. Geyer1, D. Leiner2 F. Bannwart3
1 Gastroenterologie Wettingen, Switzerland and 2 Ludwig-Maximilians University Munich, Germany 3 Medica Laboratories Zurich, Switzerland

Background
For years efforts have been made to improve the quality of colonoscopy. Cap assisted colonoscopy has been shown in some studies to increase the adenoma detection rate (ADR). Full-spectrum colonoscopes (FUSE) with 330°angle of view showed by initial studies a significantly lower adenoma miss rate and higher ADR. Subsequent FUSE studies with already high ADR with SFV were unable to confirm these results.

Aim
The aim was a practice-based, randomized comparison of the efficiency of the relatively inexpensive cap assisted, the FUSE or SFV colonoscopy.

Method
Randomized control study RCT
From March 2015 through February 2018 patients referred for ambulant colonoscopy were randomly allocated to either colonoscopy with high definition SFV Pentax i10 or FUSE instruments. The group of patients assigned to SFV endoscopy was since March 2017 examined with the additional use of Endocuff®

Subjects
Mainly screening population from a private practice.

Exclusion criteria
None except failure to undergo an ambulatory colonoscopy.

Statistical analysis
Analysis was done by Dr. D. Leiner Ludwig Maximilians University Munich and his company SoSci Survey GmbH

Results
958 patients were allocated for SFV endoscopy with Pentax i10, 1552 for FUSE and 339 for endoscopy with Pentax plus Endocuff® (all new Pentax cases since March 2017)

Baseline characteristics of the 2849 patients were similar within the three groups.

Mean age was 64 (CI 63-66), half were male.

BBPS (Boston Bowel Preparation Scale) score was 7.23 (CI 7.2-7.3), 30% were screening, 60% surveillance colonoscopies.

Ileum intubation rate was 99% in all three groups.

Patients were sedated with Propofol (mean dose overall 195; CI 190-200) significantly less with Endocuff (172; CI 165-180), p=0.0007.

With multivariate analysis male sex, diabetes and age were significant risk factors for more adenomas. Better bowel cleansing was also significantly associated with higher adenoma detection.

ADR was 50% for FUSE, 54% for SFV and 47% for Endocuff (ns=not signif.)

Conclusions
In a collective of 2849 patients randomly assigned to 3 different types of colonoscopies neither FUSE nor Endocuff could significantly increase the ADR. At present if ADR reaches around 50% no further benefit can be expected from new technology. Key factor for a high ADR seems to be long withdrawal time (e.g. 14 up to 18 min in SFV). FUSE and Endocuff lowered significantly endoscopy times (FUSE little faster in ascent, Endocuff and FUSE faster in withdrawal).

Endocuff even significantly reduced the dose of sedatives.

All authors do not have any financial or other relationship to disclose.