

Full-Spectrum (Fuse) vs. Standard Forward-Viewing Colonoscopy in an Organized Colorectal Cancer Screening Program

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Background: Miss rate of polyps was shown to be substantially lower with Full Spectrum Endoscopy (FUSE) technology as compared with standard forward-viewing (SFV) colonoscopy in a tandem study at per polyp analysis.

Methods: Consecutive subjects, aged 50 to 69, undergoing colonoscopy (TC) following a positive fecal immunochemical test (FIT) in the context of population-based colorectal cancer (CRC) screening programs were randomized to FUSE or SFV TC. TCs were performed by experienced endoscopists (5,000 SFV TCs and >10 FUSE TCs) and a three-day FUSE-training was required for each participating endoscopist; withdrawal time ≥ 6 min was recommended in both arms. Primary outcomes included detection rate of advanced adenomas (A-ADR), adenomas (ADR), sessile serrate polyps (SSPDR).

Results: Of 658 eligible subjects included in the analysis, 328 were randomized to FUSE and 330 to SFV. Caecal intubation rates (FUSE: 92.1%, SFV: 93.3%) and adequate preparation rates (FUSE: 80.5%, SFV: 81.8%) were similar. Overall, 293/658 and 143/658 subjects had at least one adenoma (ADR 44.5%); the A-ADR was 21.7%, while SSPDR was 2.7% (N=18). ADR and A-ADR were 43.6% and 19.5% in the FUSE arm, and 45.5% and 23.9% in the SFV arm, with no difference for ADR (OR for FUSE: 0.96, 95%CI: 0.81-1.14) or A-ADR (OR for FUSE: 0.82, 95%CI: 0.61-1.09). No difference in SSPDR, or multiplicity (patients with ≥ 3 adenomas), as well as in the mean number of adenomas and proximal adenomas per patient was observed between the 2 arms.

Conclusions: No statistically significant difference in ADR and A-ADR between FUSE and SFV TC was detected among FIT-positive screenees. These findings would suggest the need to assess the added value of new screening technologies in the context of ongoing programs, as difference in methodology (tandem vs non-tandem, per polyp vs per patient), training, and prevalence of diseases may influence their diagnostic performance.