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LETTERS TO THE EDITOR

Does type of instrument influence colonoscopy performance and sedation practice?

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TO THE EDITOR

In the UK, clear guidelines exist as to the expected level of competence an individual endoscopist should achieve. This is of utmost importance given the variance in practice among endoscopic departments as highlighted by the National Colonoscopy audit in 2002[1]. The audited variables included sedation practice, caecal completion and complication rates, but not the type of instrument used.

The type of instrument used has been shown by some groups to influence colonoscopy performance; for example paediatric colonoscopies are thought to aid intubation in patients with fixed angulation of the colon whilst variable stiffness colonoscopes are useful to negotiate tortuous recto-sigmoid junctions. Several studies have attempted to determine if different instruments have effects either on caecal intubation or time to caecal intubation. The findings however are conflicting, with some studies showing a benefit[2-3] and others none[4-6]. Most of these studies made comparisons between different types of Olympus colonoscopes, i.e. single manufacturer rather than an alternative (Fujinon/Pentax). Furthermore, only one study[2] assessed the dose and type of sedation used whilst in two studies[4,5], assessments were by a single experienced endoscopist. Thus, it is difficult to conclude definitively if a different make of colonoscope in less experienced hands influences not only colonoscopic performance but also sedation practice. The aim of this study was to determine if the type of colonoscope used could influence not only caecal intubation rates but also sedation practice.

Table 1 Subject characteristics and summary of results

Total (n = 199)	M:F	Age (SD) (yr)	Mean dose of Mdz/mg (SD)	No sedation	CIR	TIR
Olympus CF 240 (n = 105)	1:1.3	65 (± 14)	2.7 (± 1.4)	31 (30%)	102 (97%)	73 (70%)
Fujinon EC-450 (n = 94)	1:2.1	64 (± 11)	3.7[b] (± 1.4)	0	84[d] (89%)	46 (49%)

SD: Standard Deviation; Mdz: Midazolam; CIR: Caecal intubation rates; TIR: Terminal ileal intubation rate. [b]$P < 0.001$, [d]$P < 0.001$ comparison between Fujinon EC-450 and Olympus CF 240 on mean dose of Mdz and CIR.

We studied 199 consecutive procedures on two sites performed by a single endoscopist prospectively. The first 105 procedures were performed using the Olympus EVIS CF 240 variable stiffness scope whilst the subsequent 94 were performed using a Fujinon EC-450 WL scope. Demographic data, dose and type of sedation used as well as caecal and terminal ileal intubation rates were recorded. Results are shown in Table 1.

Indications for colonoscopy were similar in both groups as were hysterectomy rates (5%). Mean list size was 5 (range 4-6) patients and the number of therapeutic procedures was 8 (8%) in the first 105 procedures and 20 (21%) in the subsequent 94. Adjusted completion rates were superior with the Olympus colonoscope (97% *vs* 89%; $P < 0.001$) compared to the Fujinon colonosocpe. Similarly, adjusted analgesic dose was also significant with patients endoscoped with the Olympus colonoscope requiring less Midazolam (2.7 mg *vs* 3.7 mg; $P < 0.001$) whilst none required any opioid analgesics. Moreover, 30% endoscoped with the Olympus colonoscope required no sedation at all. Individual departmental caecal completion rates were similar to those of the endoscopist in this study, thereby precluding a learning curve phenomenon with the different make of colonoscopes. Although this study was not randomised and for obvious reasons cannot be blinded, operator bias was reduced as the operator had near equal experience with both types of scopes. This is the first study to our knowledge that has compared two different makes of instruments and shown that it influences not only caecal intubation rates but also sedation practice.

The optical performance of the Fujinon system is deemed superior than that of the Olympus system[7] with better resolution at target distances of less than 1 cm. A 'back to back' randomised study design, using the two

different systems to determine rates of early mucosal changes, would be required to determine if this was clinically significant. The implications of colonoscopic performance and sedation practice being influenced by different makes of instrument are far reaching. It has implications not only in training endoscopists but also in assessing individual performance, particularly those undertaking colon cancer screening.

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