Colorectal cancer screening: prospective trial comparing a thinner 100cm prototype endoscope with a standard 60cm flexible sigmoidoscope

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Background
Previously, we used magnetic endoscope imaging (MEI) [1,2] to determine the anatomical location of the instrument tip and depth of insertion at non-sedated, screening flexible sigmoidoscopy using a standard 60cm Olympus flexible sigmoidoscope [3]. Similarly, we used MEI in an open study to evaluate two thin prototype endoscopes (Olympus MS230I and XCFSEV-Figures 1a, b) in symptomatic subjects [4]. These thinner and “flopper” endoscopes appeared to offer advantages over a standard 60cm flexible sigmoidoscope [4]. However, the study was scientifically flawed because a) it was not randomised and b) it was comparing symptomatic patients endoscoped by GDB with historical asymptomatic subjects endoscoped by JP [4].

Aims
To carry out a formal, prospective, single-operator, randomised study to see if the longer and thinner XCFSEV endoscope was superior to a standard diameter 60cm flexible sigmoidoscope when used for screening flexible sigmoidoscopy.

Methods
A prospective randomised trial was conducted in 54 average risk subjects aged between 55-65 years undergoing non-sedated screening flexible sigmoidoscopy as part of the MRC Multicentre Flexiscope trial. In 27 subjects, JP used a prototype Olympus 10mm diameter endoscope (XCFSEV) measuring 100cm in length (FS100) while in the remaining 27 he used a standard 60cm Olympus endoscope (FS60). Bowel preparation was classified from 1-4 (excellent, good, adequate or poor).

Results
As can be seen from Table 1, the FS60 and FS100 groups were well matched in terms of mean age and ratio of male to female subjects. As can be seen from Tables 2 and 3 and Figures 3 and 4, the two instruments gave markedly different results. The longer and flopper 10mm diameter XCFSEV endoscope could be inserted significantly further up the colon than the standard, thicker and shorter instrument.

The mean insertion depths for the FS100 and FS60 groups were 77.3cm (range 30-95cm) and 55.7cm (range 32-60cm) respectively (p<0.001). The tip reached beyond the splenic flexure in 18/27 (67%) of the FS100 subjects but in only 3/27 (11%) of the FS60 group (p<0.001). Adenomatous polyps or cancers were found in 8/27 of the FS100 group compared with 5/27 in the FS60 group (NS).

The two main disadvantages of the thinner endoscope was a) that it was deemed slightly more difficult to use and b) took on average about 2.5 minutes longer to reach the point of maximum insertion.

Conclusions
The thinner, “flopper” 100cm prototype endoscope was well tolerated by patients undergoing non-sedated screening flexible sigmoidoscopy. The Olympus XCFSEV performed significantly better than a standard 60cm FS in terms of length of bowel examined and anatomical location of the instrument tip reached at the point of maximum insertion. A screening flexible sigmoidoscopy performed with the prototype thinner endoscope however took on average an extra 2.5 minutes more than with a standard 60cm instrument. A much larger study would be required to determine if the greater number of polyps detected as a consequence of using the FS100 would be clinically significant and thus justify the extra time taken to carry out the examination. Certainly the two subjects in the FS100 group who had moderately dysplastic adenomas > 1cm diameter detected in their transverse colons would probably not have had these discovered had a 60cm endoscope been used.

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References