Indications for colonoscopy

An analysis based on indications and diagnostic yield

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Abstract **Open access colonoscopy for patients with suspected colonic disease is often not practical and some form of patient selection may be necessary. One year's colonoscopic data from our unit were analysed to determine the major indications for the procedure and the diagnostic yield, and to evaluate the suitability of colonoscopy for each indication. The seven major indications were rectal bleeding, iron deficiency anaemia, cancer follow-up, polyp follow-up, abdominal pain, abnormal bowel habit and 'other'.**

Four hundred and forty-eight procedures were included in the analysis, with rectal bleeding, polyp follow-up and iron deficiency anaemia producing the highest diagnostic yields of 69,1%, 53,3% and 47,7% respectively. Lower yields were obtained for cancer follow-up (21%), abdominal pain (38,2%) and abnormal bowel habit (46,8%). The indication, 'other', produced a combined yield of 66,7%; the majority of patients in this group were known to have colitis. On the basis of these findings we propose that where facilities and expertise do not allow for routine colonoscopy, some form of patient selection should be employed and we believe this selection should take place according to the diagnostic yield for each indication.

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While it is currently accepted that fibre-optic gastro-duodenoscopy is the initial investigation of choice in patients with upper gastro-intestinal symptoms,[1] endoscopic examination of the colon in patients with suspected colonic disease is not as universally accepted. It remains current practice for many of these patients to be referred for sigmoidoscopy and barium enema examination, despite reports that colonoscopy is a better first-line investigation in colonic disease.[2] In addition colonoscopy can act as both a diagnostic and a therapeutic tool.[3] It has been argued that colonoscopic screening is dangerous, expensive and requires specialised skills. It has therefore been suggested that it should only be undertaken in those whom it will benefit most, and that stricter selection criteria be used to optimise a colonoscopy service.[4]

Despite these objections open access colonoscopy has proved to be a practical and advantageous diagnostic method in cases of suspected colonic disease.[5] While this may be so, certain indications for colonoscopy produce a higher diagnostic yield than others, suggesting that stricter criteria for colonoscopy may be necessary for those indications where the diagnostic yield is low.

In order to address this question we analysed 1 year's colonoscopic data from our unit to determine the major indications for colonoscopy and the corresponding diagnostic yields. On this basis we have tried to evaluate the suitability of colonoscopy as the primary investigation for certain patients.

Patients and methods

The available data from colonoscopic procedures performed by the medical gastro-enterology unit at Johannesburg Hospital during 1988 were reviewed. A total of 401 patients underwent 471 procedures. Both inpatients and outpatients underwent colonoscopy after bowel preparation with either Golytely or Sorbitol with X-Prep. Where no contraindications existed, endoscopy was performed under sedation with intravenous midazolam 2,5 - 10 mg and pethidine 25 - 50 mg. The procedures were performed by experienced colonoscopists or by a supervised trainee using Olympus GIF colonoscopes. Where the procedure failed entirely or was diagnostically incomplete because of inadequate preparations or other technical difficulties, it was repeated, if possible, at a later date. Patients were allowed home on the same day as the examination took place, unless complications occurred which required admission to hospital. Biopsies were generally not performed where the findings were macroscopically normal, except in cases of inflammatory bowel disease surveillance. The diagnosis of carcinoma was made by biopsy or polypectomy.
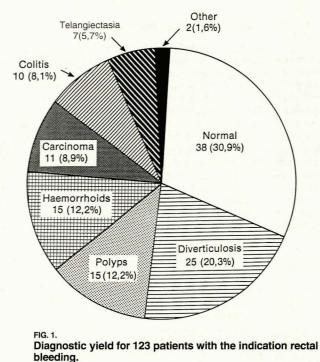
Seven major indications for colonoscopy were identified. Where multiple indications for a procedure existed, the dominant indication was adopted; the order of priority was rectal bleeding, iron deficiency anaemia, abdominal pain and abnormal bowel habits. Diagnostic yield was regarded as positive for each of the indications, if the lesion found could account for the symptoms and signs of the patient. Data analysis also took into account those cases where the procedure was incomplete, i.e. the caecum was not visualised but a diagnosis was established none the less.

Results

A total of 401 patients underwent 471 procedures. Female patients numbered 243 (61%) and males 158 (39%); ages ranged from 15 to 93 years (median 67 years). The caecum was visualised in 327 procedures (69%). The remaining 31% comprised 121 incomplete procedures (26%) and 23 failed procedures (5%). The patients in whom the procedure failed entirely were excluded from analysis; the final total was therefore 448 procedures. Significant complications were two perforations — one in a patient with an apparently normal bowel and the other in a patient with severe diverticular disease. No significant haemorrhage requiring admission or transfusion was noted.

The seven major indications were: (*i*) rectal bleeding — 123 cases; (*ii*) iron deficiency anaemia — 46 cases; (*iii*) cancer follow-up — 52 cases; (*iv*) polyps follow-up — 30 cases; (*v*) abdominal pain — 55 cases; (*vi*) abnormal bowel habit — 79 cases; and (*vii*) other — 63 cases.

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'Other' included surveillance for inflammatory bowel disease (54% of cases), search for an occult primary lesion, weight loss only, radiological doubt, therapeutic procedures, renal transplant work-up and a palpable abdominal mass. The data are tabulated in Table I and ranked according to diagnostic yield.

Rectal bleeding produced a diagnostic yield of 69,1%. Diverticular disease and polyps comprised the greatest proportion of yield pathology, 25 (29,4%) and 15 (17,6%) patients respectively (Fig. 1). Previously undiagnosed haemorrhoids were included as a cause of bleeding (17,6%). Carcinoma was diagnosed in 11 (12,9%) cases. Dual pathology was responsible for 17% of the total yield with various combinations of diverticular disease, polyps, haemorrhoids, cancer and colitis.
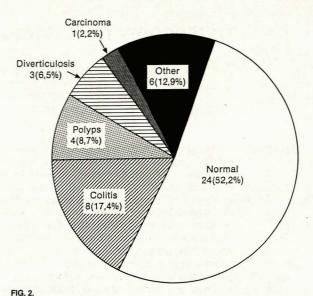
FIG. 2.
Diagnostic yield for 46 patients with the indication iron deficiency anaemia.

FIG. 1.
Diagnostic yield for 123 patients with the indication rectal bleeding.

Abdominal pain produced a diagnostic yield of 38,2% (Fig. 3). No abnormality was detected in 61,8% of these cases. Among the patients with abdominal pain as a pathological symptom, diverticular disease predominated. Carcinoma was discovered in 1 case. The diagnostic yield in patients in the abnormal bowel habit subgroup, e.g. diarrhoea, constipation and altered bowel habits, was 46,8%. Most of the disorders comprised diverticular disease (45,9%), colitis (24,3%) and polyps (21,6%). Five patients had other conditions such as angiodysplasia which could not account for the presenting symptoms of abnormal bowel habits. Carcinoma was found in 1 patient, 1,3% of the total (Fig. 4).
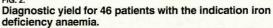
In respect of polyp follow-up, the diagnostic yield of 53,3% comprised metachronous and possibly missed synchronous polyps and 1 malignant lesion. Other disorders, predominantly diverticular disease and colitis, were diagnosed in 20% of these cases.

The diagnostic yield of 47,7% in respect of iron deficiency anaemia consisted predominantly of colitis, polyps and diverticular disease, together giving 68,2% of the yield (15 patients) (Fig.2). Dual pathological conditions were found in 15% of the patients, with various combinations of diverticular colitis, haemorrhoids and cancer.
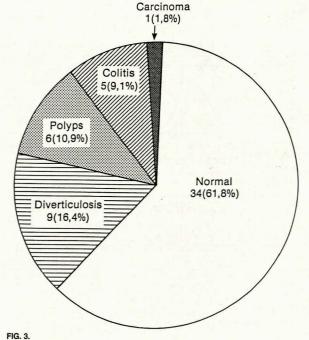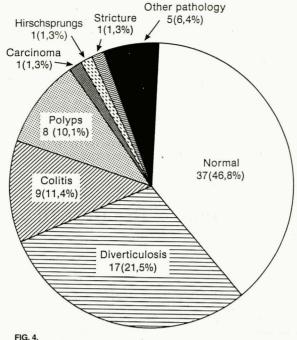
FIG. 3.
Diagnostic yield for 55 patients with the indication abdominal pain.

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tions for colonoscopy according to diagnostic yield

tion	No.	Diagnostic yield (%)	No abnormality (%)	Other pathological conditions (%)
bleeding	123	69,1	30,9	0
	63	66,7	33,3	0
follow-up	30	53,3	26,7	20
eficiency anaemia	46	47,7	52,3	0
mal bowel habits	79	46,8	46,8	6,4
mal pain	55	38,2	61,8	0
er follow-up	52	21,1	75,1	3,8

Cancer follow-up produced a diagnostic yield of 21%, 90% polyps and 10% malignant lesions; 3,8% of all cancer follow-up patients had unassociated conditions, viz. diverticula, and 75% had no abnormality.

The group of indications listed together as 'other'

FIG. 4.
Diagnostic yield for 79 patients with the indication abnormal bowel habits.

produced a combined yield of 66,7% of which the majority were patients with known colitis (50,8%).

Discussion

Open access colonoscopy remains controversial in patients with suspected colonic disease. The contrary view, that strict selection criteria be employed to limit the number of procedures, is equally unacceptable. However, it is apparent that in order for a colonoscopy service to meet demand and retain a reasonable cost/benefit ratio, selection of patients with suspected colonic disease is important. Clearly the answer lies somewhere between these two approaches with the selection of patients who should have access to colonoscopy based on the diagnostic yield.

The seven major indications we selected correspond to those used in other studies.[2,4-6] A lenient approach to the selection of patients for colonoscopy was adopted; most cases referred underwent the procedure. Limited patient selection took place; hence a large number of patients was colonoscoped for vague indications such as abdominal pain and abnormal bowel habit — approximately 30% of the procedures.

The 69,1% diagnostic yield recorded for rectal bleeding is similar to that found by Isbister (57%)[4] and Guillem *et al.* (78%).[7] Our figure may be somewhat overinflated as previously undiagnosed haemorrhoids were included as a cause of rectal bleeding. In this group the colonoscopic yield for neoplasms, benign and malignant lesions (21,1%), and carcinoma (8,9%), is consistent with previous reports.[7-9]

Polyp surveillance, with a diagnostic yield of 53,3%, is another indication for which colonoscopy is justified, both from a diagnostic and a therapeutic point of view. The report by the Endoscopy Section Committee of the British Society of Gastro-enterology discusses the importance of polyp follow-up and highlights the impressive results obtained by Gilbertsen and Nelms[10] in reducing the expected incidence of rectal cancer by polypectomy.[6]

The group of patients with iron deficiency anaemia and a negative upper endoscopy produced a diagnostic yield of 47,7%, most patients having either colitis,

polyps or diverticular disease. Neoplasms were found in 5 patients (11%) and carcinoma in 1. The relatively high diagnostic yield for this indication supports the need for colonoscopy in this group of patients.

While symptoms alone may not be sufficient to exclude patients from primary colonoscopy, patients with indications where the diagnostic yield is lower need more rigid selection. Isbister[4] points out that colonoscopy for inappropriate indications such as loose stools or abdominal pain consistently failed to help or alter patient management. Two groups of patients where rigid selection may be necessary are those referred for abdominal pain and abnormal bowel habit, where diagnostic yield was found to be lower. In both these groups diverticular disease predominated.

Low yield was most notable in those patients referred for cancer follow-up after resection. These patients are at risk of developing not only local recurrence and disseminated disease but also metachronous carcinoma or adenomatous polyps. It therefore seems appropriate that regular screening after resection be carried out. However, as Ballantyne and Modlin[11] point out, current surveillance of patients after resection has made no substantial impact on survival; they maintain that more effort should be directed towards the detection of colorectal cancer at an earlier stage. This view is supported by other reports which question the benefits of post-resection colonoscopy.[4,12] The low diagnostic yield of 23% found in this group, coupled with the experience reported above, suggests that a more rigid policy for cancer follow-up be adopted. The approach suggested by the Endoscopy Section Committee of the British Society of Gastro-enterology, i.e that follow-up colonoscopy performed every 5 years, may be appropriate, in order to screen for metachronous lesions.[6] Ballantyne and Modlin[11] concede the point.

In the category 'other' the major indication was inflammatory bowel disease surveillance, which accounted for over half the patients in this group. Despite the very poor yield for dysplasia or carcinoma it currently seems appropriate to perform colonoscopy with multiple biopsies every year or two in order to detect premalignant changes.[6] In the rest of this group the major indications were suspected carcinoma, weight loss and location of an occult primary lesion. In this group, 1 carcinoma was identified.

Conclusion

We arbitrarily divided patients referred to our unit for colonoscopy into groups according to seven major categories of indications and analysed the diagnostic yield for each of these.

On this basis it is clear that colonoscopy should be the primary investigation in patients who have rectal bleeding, iron deficiency anaemia and who are referred for polyp follow-up and inflammatory bowel disease surveillance. Where the diagnostic yield is lower, as in the case of abdominal pain and abnormal bowel habit, precolonoscopic investigations should be performed.

An open access system of colonoscopy seems ideal but where facilities and expertise do not allow, some form of patient selection must be employed. We believe that this should be based on the indications whose yields promise maximal benefit from the procedure.

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