Safety of colonoscopy

ABSTRACT—The deterioration of three patients with ulcerative colitis shortly following colonoscopy made us question whether this was related to the colonoscopy or bowel preparation, this trial was set up to answer this question. A total of 105 patients were recruited and underwent full bowel preparation and colonoscopy. Results showed that there was no statistically significant difference between patients with ulcerative colitis and controls with non-inflammatory disease in increase in bowel frequency, general well being or pain. In summary we conclude that full bowel preparation and colonoscopy in patients with ulcerative colitis managed as outpatients do not lead to a deterioration in their symptoms.

Methods

Over a five months period all patients attending for outpatient colonoscopy were invited to participate in the trial. This involved completing a questionnaire asking about frequency of bowel movements, pain, presence of blood and mucus, and general well being on three separate occasions, namely one week before colonoscopy, after bowel preparation but immediately before colonoscopy and 10–14 days following colonoscopy. Pain and well being were scored on a scale of 0–10 whilst blood and mucus were graded on a scale of 1–4: 1 being none, 4 being with every bowel action.

The patients were divided into three groups:

1. those with ulcerative colitis
2. those in a screening programme
3. patients being examined for potential colonic disease.

Groups 2 and 3 were then used as control groups.

Patients with ulcerative colitis were undergoing colonoscopy for diagnosis, assessment of disease extent or carcinoma screening in those with long standing disease.

The characteristics of the groups are shown in Table 1. All groups had similar age ranges but group 2 was generally older with a greater male to female ratio. Matching for age was not possible in view of a generally younger population with ulcerative colitis compared with other patients undergoing colonoscopy for other reasons. Statistical analysis showed no difference between men and women in changes of bowel frequency or well being, therefore the sex difference in the groups is not felt to be important.

Bowel preparation consisted of 36 hours of clear fluid plus two sachets of sodium picosulphate (Picolax) taken approximately 24 and 18 hours before the test, this being the standard regime in this unit. The colonoscopies were performed by four members of staff of registrar grade and above.

Statistics were calculated using CIA version 1.1 compiled by S B Gardner, P D Winter and M J Gardner 1991.

Results

During the five months’ study period we performed 197 colonoscopies and 105 patients completed the protocol. The diagnostic categories are shown in Table 2.

The 92 patients who did not complete the protocol fell into two groups: those who declined or were denied entry into the trial (53) and those who failed to attend the final review (39).

Among those not entering the trial, 25 were elderly patients who relied on ambulances for transport. It was not felt to be an appropriate use of resources to include these patients; 11 were unable to take time off.

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Table 1. Group characteristics.

|                | Group 1 | Group 2 | Group 3 |
|----------------|---------|---------|---------|
| Number         | 30      | 33      | 34      |
| Age range      | 21-72   | 16-83   | 12-76   |
| Average age    | 47 yrs  | 61 yrs  | 55 yrs  |
|                | 11 mths | 7 mths  | 10 mths |
| Male : female  | 14:16   | 22:11   | 12:22   |

Table 2. Diagnostic categories of colonoscopy.

| Category              | Count |
|-----------------------|-------|
| Crohn’s disease       | 4     |
| Ulcerative colitis    | 30    |
| Non-specific colitis  | 2     |
| Irritable bowel syndrome | 8     |
| Diverticular disease  | 14    |
| Screening             | 33    |
| Other                 | 14    |
work other than for their colonoscopies and 17 declined but gave no reason.

The records of those not attending for final review were scrutinised to ensure that none had been admitted with an exacerbation of their colitis or other problems which might have been related to colonoscopy.

The four patients with Crohn’s disease and the two with non-specific colitis were excluded from the control group because of their small number and the possibility that other inflammatory bowel diseases may behave similarly to ulcerative colitis.

The use of Picolax increased the frequency of bowel movements in all patients (Table 3). The mean difference in the ulcerative colitis group was 6.9 and had returned to its pre-test levels by the third review. Similar results were recorded in groups 2 and 3.

Patients with ulcerative colitis felt worse after Picolax with a mean difference in score of 1.4 but with a return to their original level of well being by the third review.

Neither of the control groups showed statistically significant differences in well being at any stage. The difference in well being between the ulcerative colitis group and the control groups was not statistically significant.

No differences were seen in any of the groups with regard to pain, blood or mucus.

Discussion

While much has been published regarding the overall safety of colonoscopy and bowel preparation [1–5], there is little information specifically on patients with inflammatory bowel disease.

Recognised complications of colonoscopy include perforation, haemorrhage, respiratory depression and bacteraemia but the risks are not reported to be greater in patients with inflammatory bowel disease. In most series the reported risk of perforation is about 0.2% for a diagnostic colonoscopy [1,3–6] but Jentschura et al [7] quoted a figure of only 0.04%. Following polypectomy the reported perforation rate varies from 0.3% [4,5,8,9] to as high as 2% [6]. Death following colonoscopy is rare (from 0.008% to 0.09%) [4,5,7,10]. One study of over 2,000 patients reported no mortality [8]. Habr-Gabr et al [4] give separate figures for diagnostic and therapeutic colonoscopies, with mortality rates of 0.02% and 0.03% respectively.

Most clinical practice concerning bowel preparation and colonoscopy in patients with inflammatory bowel disease stems from anecdotal evidence, some centres using a more ‘gentle’ bowel preparation for those with inflammatory bowel disease [11,12,13]. Picolax has fewer adverse effects than the older sennosides and the only published report of colonic perforation with Picolax occurred in a patient with an obstructing carcinoma and proximal diverticulum [14]. McDonagh et al [11] showed that full bowel preparation was well tolerated in patients with inflammatory disease.

Isgar et al [15] and Alemanyuh et al [16] found no evidence of relapse in patients undergoing colonoscopy nor of complications. This may merely reflect the fact that patients with active colitis are not undergoing colonoscopy because of the widely held belief in its risks.

There have been only five case reports of perforation in patients with inflammatory bowel disease. Four occurred following biopsy in active disease and one in an area of Crohn’s disease at the splenic flexure [5,17,18].

Our study has shown that bowel preparation with Picolax and colonoscopy were well tolerated, confirming that they are safe and do not lead to adverse effects in patients with ulcerative colitis. All patients in this trial were well enough to be managed as outpatients and therefore the results cannot be applied to patients with severe active colitis requiring inpatient management.

References

1. Ghazi A, Grossman M. Complications of colonoscopy and polypectomy. Surg Clin North Am 1982;62:889–96.
2. Shamir M, Schuman BM. Complications of fibreoptic endoscopy. Gastrointest Endosc 1980;26:86–91.
3. Macrae FA, Tan KG, Williams CB. Towards safer colonoscopy: a report on the complications of 5,000 diagnostic or therapeutic colonoscopies. Gut 1983;24:376–83.
4. Habr-Gama A, Waye JD. Complications and hazards of gastrointestinal endoscopy. World J Surg 1989;13:193–201.
5. Rogers BHG, Silvis SE, Nebel OT, Sugawa C, Mandelstam P. Complications of flexible fibreoptic colonoscopy and polypectomy. Gastrointest Endosc 1975;22:73–7.
6 Luchette FA, Doerr RJ, Kelly K, Kalaylat M, et al. Colonoscopic impaction in left colon strictures resulting in right colon pneumatic perforation. Surg Endosc 1992;6:273-6.

7 Jentschura D, Rauter M, Winter J, Henkei Th, et al. Complications in endoscopy of the lower gastrointestinal tract. Therapy and prognosis. Surg Endosc 1994;8:672-6.

8 Waye JD, Lewis BS, Yessayan S. Colonoscopy: a prospective report of complications. J Clin Gastroenterol 1992;15:547-51.

9 Van Gossum A, Cozzoli A, Adler M, Taton G, Cremer M. Colonoscopic snare polypectomy: analysis of 1,485 resections comparing two types of current. Gastrointest Endosc 1992;38:472-5.

10 Geenen JE, Schmitt MG, Hogan WJ. Complications of colonoscopy. Gastroenterol 1974;66:812.

11 McDonagh AJ, Singh P, Pilbrow WJ, Youngs GR. Safety of Picolax in inflammatory bowel disease. Br Med J 1989;299:776-7.

12 Waye JD, Williams CB. Colonoscopy in inflammatory bowel disease. Clin Gastroenterol 1978;7:701-17.

13 Waye JD. Endoscopy in inflammatory bowel disease. Clin Gastroenterol 1980;9:279-96.

14 Phipps RF, Fraser S. Faecal peritonitis induced by Picolax. Br Med J 1987;295:1027.

15 Isaac B, Harman M, Whorwell PJ. Factors preceding relapse of ulcerative colitis. Digestion 1983;26:236-8.

16 Alemayehu G, Jarnerot G. Colonoscopy during an attack of severe ulcerative colitis is a safe procedure and of great value in clinical decision making. Am J Gastroenterol 1991;86:187-90.

17 Loggan M, Moeller DD. Delayed perforation of the caecum after diagnostic biopsy. Am J Gastroenterol 1984;79:33-4.

18 Smith LE. Complications of colonoscopy and polypectomy. Dis Colon Rectum 1976;19:407-12.

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