Failure to record variables of growth and development in children with inflammatory bowel disease

J R Barton, Anne Ferguson

Gastrointestinal Unit,
Western General Hospital
and University of
Edinburgh, Edinburgh
EH4 2XU

J R Barton, MRCP, lecturer in
medicine
Anne Ferguson, FRCP,
professor of gastroenterology

Correspondence to: Dr
Barton.

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Important consequences of inflammatory bowel disease in children include failure of growth and retarded sexual development. Failure of growth has been recorded in around 30% of children with Crohn's disease,¹ and some reports suggest figures as high as 51% for retarded height (below the third centile) and 47% for retarded weight.² Delayed puberty may occur in up to 20% of children with ulcerative colitis and 39% with Crohn's disease.³ Unfortunately, most reports have been based on highly selected patients and must be interpreted with caution. We studied records of young patients with inflammatory bowel disease identified through the Scottish hospitals' inpatient statistics,⁴ which records and links data on all patients admitted to NHS hospitals, to define the prevalence and severity of growth failure. This, however, proved impossible because of underrecording of the relevant simple clinical data.

Patients, methods, and results

Altogether 1257 patients aged 20 and under at the time of admission to an NHS hospital in Scotland in 1968-83 had inflammatory bowel disease. Records of 255 patients were examined; the 105 patients whose disease started at 16 or less were included in this study.

development was poor with significantly fewer records in children with ulcerative colitis ($p<0.05$). Bone age was noted in only 19 children at any stage of follow up.

Surgeons and physicians were equally poor in recording height and weight (table) whereas paediatricians always did so. Differences among specialists in recording height were significant ($p<0.0001$). All specialists were deficient in recording sexual development and bone age. Paediatricians were somewhat better than physicians and surgeons (and significantly so for bone age ($p<0.001$)), but over half the patients cared for by a paediatrician had had neither recorded. Patients cared for by a gastroenterologist fared no better than those cared for by a general physician.

When height ($n=55$) and weight ($n=86$) were recorded within six months after diagnosis many children were found to be underweight and small for their age, with an appreciable number below the third centile, particularly among those with Crohn's disease. Follow up one to 15 years after the initial recording did not show any notable improvement.

In all cases documentation was equally poor for rural and urban regions and for teaching and district hospitals.

Comment

Growth failure and delayed sexual development are important complications of inflammatory bowel disease in children and adolescents and may be treatable.¹ We found, however, that they often remain unrecognised. Many measurements recorded were extremely abnormal, suggesting that they were made only when the child's growth was obviously retarded and that the omissions were measurements of normal stature. From subjective comments in letters and notes, however, this seems unlikely.

Documentation of growth variables and sexual development of children with inflammatory bowel disease by disease and specialist

	Height				Weight				No of patients in whom sexual development recorded	No of patients in whom bone age recorded
	No of times recorded		No of patients in whom height recorded		No of times recorded		No of patients in whom weight recorded			
	Median	Range	Never	Once	Median	Range	Never	Once		
Disease:										
Crohn's disease (n=68)	1	0-14	20	16	5	0-15	4	1	24*	15
Ulcerative colitis (n=37)	1	0-18	16	5	5	0-42	5	3	5*	4
Total (n=105)	1		36	21	5		9	4	29	19
Specialty of consultant:										
Physician (n=51†)			23‡	13			5	3	12	3§
Surgeon (n=26†)			13‡	7			4	0	6	3§
Paediatrician (n=28†)			0‡	1			0	1	11	13§
Total (n=105)			36	21			9	4	29	19

* $\chi^2=4.65$, $df=1$, $p=0.0293$.

†Number of children assigned to each specialist.

‡ $\chi^2=40.01$, $df=2$, $p<0.0001$.

§ $\chi^2=20.05$, $df=2$, $p<0.001$.

There were 56 boys and 49 girls (68 with Crohn's disease and 37 with ulcerative colitis). The mean (SD) duration of follow up was 7.2 (4.4) years (range 0.8-18.5). The diagnosis was confirmed, and descriptions of height, weight, bone age, and sexual development at diagnosis and during follow up were noted. The specialties of the patients' consultants were recorded. Results were analysed by contingency tables.

We found that anthropometric and growth data were scanty. Height was recorded poorly (table), though the range of frequency of recording was wide. Fifty seven patients either had never had their height recorded or had had it recorded only once. Weight was charted somewhat more regularly but noted only once or never in 13 patients. There were no differences in the rates of recording height and weight between Crohn's disease and ulcerative colitis. Documentation of sexual de-

Ideally, height and weight should be noted at each hospital visit or at least yearly to calculate rates of growth.⁵ There should be at least a yearly written statement of sexual development but preferably a standard description and staging. Consultants treating children with inflammatory bowel disease need to be more aware of their special nutritional and developmental problems and the importance of regular recording of simple anthropometric variables.

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Costs of infection control in endoscopy units

P J V Hanson, S Meah, D Tipler, J V Collins

**Brompton Hospital,
London SW3 6HP**

P J V Hanson, MRCP, *research fellow*

S Meah, SRN, *endoscopy nurse*

D Tipler, MINSTPS, *supplies manager*

J V Collins, FRCP, *consultant physician*

Correspondence to: Dr Hanson.

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Bronchoscopists face problems in reconciling hygienic practices with service demands and limited resources. We prospectively assessed the costs of three different approaches to controlling infection in endoscopy units.

Methods and results

The table gives details of the three policies; they each lasted four weeks and were implemented consecutively in our unit. The first policy relied on infected patients being identified before extra precautions were adopted. The second and third policies assumed all body fluids to be infected with HIV and hepatitis B virus, the third policy differing from the second only in having longer disinfection times to meet the Department of Health's recommendations on mycobacteria.¹ Costs of maintaining and repairing bronchoscopes for the preceding four years were obtained from the suppliers (Keymed). Screening all patients for hepatitis B before bronchoscopy was mandatory under hospital policy. The policy was to warn the nurse if a patient had hepatitis or suspected mycobacterial infections. Actual mycobacterial infections and compliance with hepatitis screening were determined retrospectively from laboratory records.

Forty two, 40, and 44 bronchoscopies were per-

formed during the first, second, and third policies respectively. Three or more patients underwent bronchoscopy consecutively on 10 occasions. On six of these occasions, during the third policy, three bronchoscopes were used to avoid a delay of half an hour between the second and third patients. All other lists were completed without delays with two bronchoscopes. Gown and gloves were worn almost universally during the first policy, though their use was discretionary. Compliance with all three policies was excellent.

The capital cost of each policy was essentially that of a bronchoscope (£7756), biopsy forceps (£261), and reusable cytology brush (£199). Two of each were required for the first and second policies and a third for the third policy. The mean cost of maintaining and repairing each bronchoscope was £86.40 a year.

The mean cost of consumables and laundry per bronchoscopy was £17.50, £15.40, and £12.70 for the three policies respectively. The first policy proved more expensive because of special provision made for the one patient positive for HIV antibody. This entailed replacing a suction bag and gown and linen, though they were not soiled and were normally reused (cost £7.80); and discarding part of the cytology brush (cost £99). These two factors contributed £2.54 to the cost per bronchoscopy under the first policy; the cost for each non-infected patient under this policy was therefore £14.96. Further differences in cost were largely unrelated to infection control and were due, for example, to differences in drugs and the number of samples taken.

In addition to the cost of consumables under the first policy the cost of screening for hepatitis and HIV (72p and £1.15 respectively for each patient screened) should be added.

Screening for hepatitis B, though mandatory, was performed on only 79 of the 126 (63%) patients, all of whom were negative. The bronchoscopy nurse was not informed of any possible mycobacterial infections. One patient during the first policy, however, had *Mycobacterium tuberculosis* in her sputum at bronchoscopy, and another, who underwent bronchoscopy during the third policy, had *M. xenopi*.

Comment

Since the emergence of HIV a uniform policy has been advocated as the only rational approach to controlling infection.^{2,3} For endoscopy units a uniform policy is less disruptive and costs no more than current two tier policies; indeed, with increasing numbers of infectious patients two tier policies become more expensive. The effect of length of procedure and time for disinfection on the number of instruments needed has been discussed.⁴ Some units would need to buy extra fibrescopes and to replace older, non-immersible models with immersible ones. Over half of the units already have three or more bronchoscopes and over a third have two; a fifth reserve a bronchoscope for infected patients (S E Church, personal communication). A uniform policy could release these instruments for general use.

The policies detailed here are illustrative. The British Thoracic Society has recently circulated its members with

Summary of policies for infection control

	Policy 1	Policy 2 (all patients except those with tuberculosis)	Policy 3 (all patients)
Endoscopist and assistant	Gown* (optional) Gloves (optional) Gown, gloves, mask† Eye protection†	Gown,* gloves, mask Eye protection	As for policy 2
Patient	Paper roll on couch Linen pillow case* Blanket* Paper drape† on couch Paper pillowcase† Blanket†	Paper roll on couch Linen pillow case* Blanket*	As for policy 2
Cleaning and disinfection	Clean in detergent Sonicate brushes and biopsy forceps Disinfect in 2% glutaraldehyde for >5 minutes; rinse in 70% alcohol Bleach (10%) to surfaces and floor at end of day Disinfect in 2% glutaraldehyde for >60 minutes† Bleach (10%) to surfaces and floor†	Clean in detergent Sonicate brushes and biopsy forceps Disinfect in 2% glutaraldehyde for >30 minutes routinely, for 60 minutes if tuberculosis suspected; rinse in 70% alcohol Bleach (10%) to surfaces and floor at end of day or after spill of body fluid	As for policy 2 but disinfect for 60 minutes routinely
Equipment	Silicon suction tubing changed for each case New suction bag for each list Suction tubing and bag† Dispose in skip Put in plastic bag†	Single pack plastic suction tubing for each case New suction bag for each list Dispose in skip; put in plastic bag if soiled with body fluids	As for policy 2
Linen	Cytology brush and biopsy forceps reused Transported in self sealing plastic bag Central wire from cytology brush discarded† Put in two bags with hazard label†	Cytology brush and biopsy forceps reused Transported in self sealing plastic bag	As for policy 2

*Item reused until soiled.

†Procedure for infectious patients, such items used only once.