How trustworthy are bowel histories? Comparison of recalled and recorded information

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Summary

One hundred and fifty hospital outpatients were questioned about their bowel habits and then asked to record these in diary booklets for two weeks. Overall, recalled and recorded figures for frequency of defecation agreed fairly closely, but in 16% of patients there was a discrepancy of three or more bowel actions per week. This was usually an exaggeration of the difference from the norm of one a day. Patients were bad at predicting episodes of changed bowel frequency. These findings cast doubt on the value of population surveys of bowel habit based solely on questionnaires. They also suggest that the irritable bowel syndrome might be correctly diagnosed more often if patients were routinely asked to record their bowel actions.

Introduction

Inquiring about bowel habit is an important part of taking a clinical history, and patients' replies are usually taken at face value. Pilot studies with a stool-recording diary led us to suspect, however, that patients' recall of bowel habit is often imperfect. Since this recall is heavily relied on in diagnosing the irritable bowel syndrome, which is the commonest diagnosis in new patients at a gastroenterology clinic,¹ it seemed important to assess the accuracy of bowel recall. We have attempted to do this by comparing what patients say about their bowel habit at routine clinical interview with what they record in a specially designed "bowel diary." Such a study has not been reported.

Patients and methods

Patients were selected randomly from those attending general medical outpatient clinics at Bristol Royal Infirmary, chiefly for follow-up. We excluded only those whose medication was changed, who were undergoing investigations that might alter bowel function, or who were about to go on holiday. Each patient was given a standard questionnaire. The first three questions, about bowel frequency, were asked by the clinician during the normal clinical interview. At this point the patient was unaware that a special inquiry was being made into his bowel habits, as we wanted to simulate as closely as possible the conditions of normal history taking. The remaining questions were asked by one of us at the end of the appointment and concerned the frequency of (a) no bowel action for two consecutive days, (b) the passage of two or more stools between meals, and (c) the passage of a stool after rising from bed but before breakfast (breakfast being defined as food or drink within half an hour of rising). The last question was bypassed in patients who normally had something to eat or drink in bed before rising. Patients were asked to predict from their usual bowel habit how often these events would occur within the next two weeks.

The patients were then given two copies of a specially designed diary booklet and instructed how to use it. Each booklet covered seven days, a day to a page, and each day was divided into five periods: the night; after rising but before breakfast; between breakfast and lunch; between lunch and supper; and between supper and bedtime. Patients were told to record a bowel movement by putting a cross in the appropriate space immediately after every bowel action. At the back of the booklet they were asked to state whether their bowels had acted as usual during that week. A stamped addressed envelope was provided to return each booklet as soon as it was completed. Patients who returned both booklets were sent a letter that served two purposes. It thanked them for their co-operation and it aimed to discover any errors, omissions, or lapses of memory in completing the booklets. This "honesty letter" pointed out several possible errors and invited the patients to say, not whether, but how often these had occurred. All data were transferred to punched cards for storing and machine sorting.

Results

Of the 150 patients admitted to the study, 128 (85%) returned both booklets and 122 also returned the honesty letter. Five patients failed to answer one or more questions in the honesty letter, while 36 admitted to one or more errors in recording their bowel actions. These patients' booklets were therefore excluded, leaving for further analysis 81 apparently error-free pairs of booklets (from 34 men and 47 women aged 19 to 82 years).

Frequency—The stated frequency of bowel actions ranged from two a week to three or four a day. The frequencies recorded in the booklets ranged from three a week to five a day. Overall, there was a fair approximation between recalled and recorded frequencies (see figure). In 23 patients (28%) there was a discrepancy of two or more bowel actions a week. In 13 (16%) this discrepancy amounted to three or more. For the whole group of 81 patients there was, by the Friedman 2-way analysis of variance ranking test,² no significant difference between recalled and recorded frequencies ($\chi^2=3.160$). But for those who had estimated the frequency to be six or less a week the difference was significant ($\chi^2=7.579$; $P<0.01$) owing to a consistent tendency to underestimate bowel frequency at interview. For all

Relation between bowel frequency as stated on questioning and as recorded in a diary booklet. Small dots represent single patients, and large dots represent groups of patients; actual number of patients is indicated beside each dot. Shaded area represents 1.5 bowel actions a week each side of the line representing exact correspondence between recalled and recorded frequency.

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patients who had estimated their bowel frequency at eight or more a week there was no systematic difference between recalled and recorded frequencies ($\chi^2=0.471$). When the imprecisely documented group with 15 or more stools a week was excluded, however, a different picture emerged. Of those who predicted 8, 9 or 10, and 11 to 14 bowel actions a week, half were wrong by two bowel actions a week or more and most of the errors were overestimates.

Two consecutive days with no bowel action—Fourteen patients predicted that at some stage in the next two weeks they would experience two consecutive days with no bowel action. Only nine, however, recorded themselves as doing this. Of the 67 patients who had predicted they would not miss two consecutive days, two in fact did so.

Two or more bowel actions between meals—This was predicted by 16 patients but experienced by only seven of them. It was also experienced by five of the 65 patients who had predicted it would not happen in a two-week period. Of these five, three had denied that it ever happened.

Bowel actions after rising but before breakfast—Since 29 of the 81 patients usually had something to eat or drink in bed before rising and six more had no breakfast, only 46 patients were eligible for analysis. Only 18 of these predicted that they would open their bowels before breakfast during a two-week period. In fact 38 patients were recorded as doing so. This included all 18 who had expected it, but also 20 of the 28 who had not expected it. These 20 patients had denied that they ever opened their bowels before breakfast. Despite this, one of them did so every day for two weeks.

Discussion

The accuracy of diary recordings is obviously crucial to the evaluation of our data. We made a special effort to detect and exclude any errors and omissions and included only subjects who, when given the opportunity to confess without risk of embarrassment, denied any peccadillo, however slight. More rigorous surveillance would have been impracticable without changing the patients' life-style and therefore, probably, their bowel habits, which would have negated the object of this study.

Overall, there was reasonably close agreement between the number of bowel actions patients stated they had each week and the number they recorded. Nevertheless, one in six patients were wrong in their predictions by as much as three motions a week. This degree of error is probably unimportant clinically, but implies that patients' estimates should not be regarded as precise in, for example, epidemiological surveys. Patients whose

usual bowel frequency deviated from the norm of seven bowel actions a week tended at interview to exaggerate the extent of this deviation.

The discrepancy between recalled and recorded information was particularly pronounced in relation to the passage of stools after rising from sleep but before breakfast. Many people seem to be remarkably unaware of the times at which they defecate. This suggests that patients' statements about the timing of their bowel actions should be accepted with caution.

The passage of multiple stools between one meal and the next would be regarded as abnormal by most patients as well as most doctors. Nevertheless, patients were notably bad at predicting this. Half the recordings of it had not been expected, and half of those who expected it failed to record it. Similarly, the occurrence of two consecutive days with no bowel action was considerably overpredicted. Since episodes of infrequent and frequent bowel action are central to the diagnosis of the irritable bowel syndrome, these findings suggest that this disorder is apt to be misdiagnosed unless patients are asked to record their bowel actions in a diary.

Investigations of bowel habit in the general population³⁻⁶ have all assumed that the questionnaire technique is satisfactory. Our results suggest that it is not satisfactory, particularly if reliable information is required beyond the mere number of bowel actions a week. Perhaps future epidemiological studies should include actual recordings of bowel motions.

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Copies of the questionnaire, diary, and honesty letter are available from the authors on request.

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SHORT REPORTS

Amodiaquine-induced involuntary movements

Amodiaquine hydrochloride is similar to chloroquine and is an effective, relatively non-toxic antimalarial drug. Side effects from therapeutic doses are nausea, vomiting, diarrhoea, and lethargy.¹ Prolonged use may cause corneal deposits and bluish grey pigmentation of the fingernails, skin, and hard palate.² Absolute neutropenia has been reported in a girl aged 2 given 200 mg amodiaquine base daily for seven days.³ We report other side effects seen in four patients given this drug.

Case reports

Case 1—A young woman presented with a protruding tongue, difficulty in speaking, and excessive salivation. Three days previously she had been given three tablets of amodiaquine initially and thereafter three tablets daily for malaria. She had had similar symptoms once before after taking this drug. There was fasciculation of the tongue and facial muscles and saliva dripped from her mouth. The involuntary movements were thought to be drug-induced. She was given benzotropine mesylate 2 mg intravenously. Within 30 minutes the fasciculation ceased, salivation had greatly decreased,

and the tongue began to recede. The dose was repeated six hours later with further benefit. Because the patient had taken aspirin with the amodiaquine she agreed to take amodiaquine again if she had another malaria attack. Six months later one occurred and the side effects were exactly repeated.

Case 2—A young woman presented with a three-day history of fever, diagnosed as malaria, for which she had had chloroquine followed by three tablets of amodiaquine. Within 24 hours she was nauseated and dizzy, her gait was wobbly, she had intention tremor, she stammered, and her tongue felt heavy and later protruded. She was thought to have hysteria, but a psychiatrist diagnosed drug-induced pseudo-Parkinsonism. After benzotropine mesylate 2 mg intravenously she rapidly improved.

Case 3—A young woman was given three tablets of amodiaquine for suspected malaria. Within three hours she developed tremor, difficulty with speech, and excessive salivation. She was prescribed oral benzhexol 10 mg and the symptoms disappeared within two hours. She recalled having had similar symptoms about three hours after taking amodiaquine previously. They had decreased gradually and disappeared over 24 hours.

Case 4—A 7-year-old boy presented with a protruding tongue. He had been given two tablets of amodiaquine on each of the two preceding days. He was given benzotropine 0.5 mg intravenously and rapidly improved.

Comment

Involuntary movements are common in extrapyramidal syndromes such as Parkinsonism, hepatolenticular degeneration, chorea, and