PRACTICE OBSERVED

Practice Research

Heartburn for the patient—heartache for the doctor?

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Heartburn has been described as a retrosternal burning sensation related to posture and eased by antacids. It is probably true to say that most people experience heartburn at some time in their lives and that most consider it as perhaps a troublesome but trivial medical complaint.

Gear and Barnes performed endoscopic studies on 346 patients in general practice with dyspepsia lasting more than two weeks and found that only 99 had no abnormality of the gastrointestinal tract.[1] We decided to focus on heartburn rather than on the less specific dyspepsia and study the range of diagnoses in heartburn sufferers in general practice to see whether it was possible to identify factors that will allow us to predict the severity of oesophagitis in patients with symptoms of gastro-oesophageal reflux.

Patients

The patients were referred to the research fellow from 17 practices, mainly from the greater Belfast area. They were identified from two sources: (*a*) patients consulting their family doctor with heartburn as the presenting complaint, and (*b*) patients requesting "repeat prescriptions" for antacids at a frequency which suggested that they required to use them at least every other day. We recognised that there may have been patients suffering from reflux oesophagitis who were not identified under these criteria.

At the initial assessment patients who complained of heartburn as the predominant gastrointestinal symptom and who suffered from heartburn regularly were entered into the study. Patients were excluded if they were pregnant or lactating, if they had been taking an H_2 receptor antagonist within the previous four weeks, if they had had gastric surgery, or if they had other known gastric or duodenal disease.

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Method

SYMPTOMS

At the first visit a full history was taken, including details of drugs taken, smoking habits, and alcohol intake, and a full physical examination made. Haematological assessment of peripheral blood picture was carried out. Liver function was assessed by estimation of serum bilirubin concentrations and hepatic enzyme activities and renal function by measurement of serum urea and creatinine concentrations.

Details of the severity and frequency of attacks of heartburn over the previous four weeks were recorded. Other symptoms recorded in addition to heartburn were epigastric pain, flatulence, waterbrash, dysphagia, odynophagia, vomiting, and respiratory difficulty at night. The patients were observed over four weeks during which time they were asked to complete diary cards recording frequency of heartburn attacks and daily consumption of a standard unmarked antacid. Towards the end of this four week period patients were sent to have an endoscopic examination.

ENDOSCOPY

Endoscopy was carried out as an outpatient procedure under sedation with intravenous valium. A flexible fibreoptic Olympus GIF Type 3D endoscope was used. The endoscopic examinations were carried out by a single independent operator in 95% of cases. Oesophagitis was graded as follows: grade 0 normal; 1 erythema with friability of the mucosa; 2 discrete lesions—that is, erosions or multiple superficial ulcers; 3 confluent and longitudinal erosions; 4 circinate ulceration with or without complications—for example, Barrett's syndrome. No barium studies were carried out, although many of the patients had had barium studies performed before that showed no abnormality

Results

One hundred and forty four patients, 62 men and 82 women, aged from 18 to 77 years, were referred for the initial assessment and four

weeks of observation. During this period 18 patients were withdrawn from the study (table I). Of 126 patients who attended for the initial endoscopic examination, it was successful in 121 (table II). Of the 90 patients with reflux oesophagitis, a hiatus hernia, or no abnormality, data were available for statistical analysis from 77.

TABLE I—*Reasons for withdrawals during four week observation period (n = 18)*

Reason	No
Patients with relatively minor symptoms—that is, not longstanding or regular	3
Acute inferolateral myocardial infarction	1
Ischaemic heart disease	1
Cancer phobia	1
Jaundice abnormal liver enzyme activities	2
Pregnancy	1
Allergy to antacids	1
Non-medical reasons	8

TABLE II—*Initial endoscopic findings in 121 patients*

Diagnosis	No	
Reflux oesophagitis	55	45·5
Hiatus hernia	14	11·5
No abnormality	21	17·4
Active duodenal ulcer alone	10	8·3
Active duodenal ulcer plus reflux oesophagitis	6	5·0
Benign gastric ulcer	1	0·8
Adenocarcinoma of stomach	1	0·8
Gastritis or duodenitis	13	10·7

A Spearman's rank order correlation was used to measure the correlation between the severity of oesophagitis and the following variables measured over the four weeks of observation:

(*i*) number of episodes of heartburn a day (r = 0·269);
(*ii*) number of days a week with heartburn (r = 0·124);
(*iii*) antacid consumption (r = 0·140);
(*iv*) duration of heartburn as a symptom (r = 0·022);
(*v*) weight of the patient (r = 0·058);
(*vi*) smoking habits (r = 0·044);
(*vii*) drinking habits (r = 0·078);

and between the number of episodes of heartburn and:

(*i*) duration of heartburn as a symptom (r = 0·022);
(*ii*) weight of the patient (r = 0·047);
(*iii*) smoking habits (r = 0·092);
(*iv*) alcohol intake (r = 0·078);
(*v*) antacid consumption (r = 0·533).

There was no evidence of an important difference between grades of oesophagitis with respect to episodes of heartburn, days a week with heartburn, or number of antacids consumed (table III). Although it was not statistically significant, there seems to be a trend that patients with grade 4 oesophagitis have more heartburn and consume more antacids. Only six patients, however, fell in this grade, one of whom had very severe symptoms and therefore had a disproportionate effect on the mean value.

TABLE III—*Severity of oesophagitis and symptoms*

Grade of oesophagitis	No of patients	Episodes of heartburn (mean (SD))	No of days a week with heartburn (mean (SD))	No of antacids consumed (mean (SD))
0	31	30·7 (22·5)	11·9 (2·87)	49·8 (42·8)
1	20	33·0 (27·4)	11·1 (3·43)	40·8 (42·1)
2	15	40·7 (24·3)	12·5 (2·42)	63·4 (56·9)
3	5	38·4 (19·6)	12·6 (2·19)	50·8 (23·7)
4	6	59·5 (29·7)	13·0 (2·0)	96·0 (84·0)

Discussion

It is obvious from the findings of this study that as general practitioners we cannot assume that people who complain of heartburn are suffering from reflux oseophagitis. The endoscopic diagnosis of oesophagitis was true in only 45% of our cases. We do not suggest that endoscopy is the only means of diagnosing the various conditions that were found. In general practice, however, it is desirable to cause as little inconvenience as possible to the patient but at the same time it is important not to substitute accuracy for convenience. The most convenient investigations are endoscopy and radiography, and results from other studies suggest that endoscopy is more accurate. Endoscopic examination of patients with dyspepsia but normal findings on barium studies has shown lesions of obvious clinical importance in 30%[2] and 32%.[3]

We could not pinpoint any clinical symptom or sign that would indicate the severity of oesophagitis. The results do not confirm the popular belief that oesophagitis is aggravated by drinking and smoking, and by age and weight. It is generally accepted that obesity predisposes towards gastro-oesophageal reflux. In this study six patients were obese—defined as weight 20% above the upper limit of the acceptable weight range. Of these six patients, two had grade 4 oesophagitis with stricture formation and one had grade 3 oesophagitis. The other three had hiatus hernia and no oesophagitis. There were only four other strictures found in patients in the study and the patients were all overweight. It is interesting that although weight and severity of oesophagitis were not associated, all of the six patients with strictures were overweight.

It should now be apparent that we can no longer regard recurrent heartburn as a trivial complaint nor can we assume that the disorder necessarily lies in the gastrointestinal tract. Two of our patients who did not have an endoscopic examination were found to have ischaemic heart disease and in one of these it was thought to be the prime cause of his "heartburn." An electrocardiographic examination carried out after an unusually severe and prolonged attack of heartburn showed him to have had an acute myocardial infarction.

It is common practice to refer patients who have severe symptoms for endoscopy. The results from this study show that these are not necessarily the patients who have the most severe disorders. It may be that "open access" endoscopy is required and that all patients, even those with relatively trivial symptoms, should have an endoscopic examination.

Conclusions

One hundred and forty four patients in general practice in Northern Ireland who had heartburn as their predominant gastrointestinal symptom and had had it for at least four weeks were identified. Heartburn was described as a retrosternal burning sensation related to posture and eased by antacids. Most general practitioners would use gastro-oesophageal reflux as an initial working diagnosis in such a patient.

One hundred and twenty six of our patients were investigated by fibreoptic endoscopy. Only 55 patients had endoscopic evidence of reflux oesophagitis, and the degree of the oesophagitis showed no relation to the severity of the symptoms. Fourteen patients had hiatus hernia, 16 had a duodenal ulcer, one a benign gastric ulcer, one an adenocarcinoma of the stomach, and 13 gastritis or duodenitis. In 21 patients no disorder was found and in five endoscopy was unsuccessful.

The results of this study suggest that heartburn can no longer be regarded as a trivial complaint and that the patients who are now referred for endoscopy—namely, those with severe symptoms—are not necessarily those with the most severe disorders. It may be that "open access" endoscopy is justified.

We thank the general practitioners associated with the department of general practice; those who referred the patients, and the Royal Victoria Hospital nurses who looked after the patients undergoing endoscopy.

References

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Occupational Medicine

A week in the life of a general practitioner in occupational medicine

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Variety is the spice of life—or is it? If, like me, you are a general practitioner and think the answer is "Yes" then why not boost your interests and practice income with a little occupational medicine? The required ingredients vary, but, to take the more extreme case such as my own, the following are needed: a group practice with cooperative partners, a minimum list of about 1000 patients, and a minimum time spent in general practice of 20 hours per week (surgery and visiting time). Throw in for good measure some appropriate training and you are ready to go. Remember, however, that when the practice premises or ancillary staff are used at all, total practice income from private work must not exceed 15%. How then can you usefully occupy the remaining half of the week not used for general practice? Well, this will vary a lot but my own experiences may give some ideas.

Monday morning

Monday is never the brightest day of the week. Off to the surgery, check the mail, check for any house calls, then off to Norsk Hydro Fertilisers—interesting job this. It used to be Fisons Fertilisers and was recently taken over by a giant Norwegian company, after which I was appointed company medical officer. Headquarters is in Felixstowe, with principal fertiliser factories in Avonmouth and Immingham. The job is mainly coordinating full time occupational health nursing staff and part time doctors at the units. Novel idea having a part time company doctor, but it seems to work well. Excellent safety department, so no need to worry there. Main current problem is nitrates and their effect on health. Recent publicity in the media about possible relation to cancer, poison in the drinking water, etc. Certainly unproved and a search of published reports gives no conclusive evidence, but I thought it justified advising that the company be concerned in further epidemiological studies.

All seems well this morning with occupational health nurse. He looks after the day to day running of the occupational health service under my supervision. Given proper training, it is surprising how much nurses achieve. Sometimes I wonder how necessary I am! Back to do some general practice, and tag on to afternoon surgery a few company medical examinations and Department of Health and Social Security medicals for prescribed diseases. My partners do the life assurance medicals.

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Tuesday-Wednesday

Tuesday is duty day, the day we all look forward to! Busy in general practice, no occupational medicine except on the telephone, followed by night duty for 17 000 patients and the general practitioner hospital. Roll on Wednesday. Early morning surgery, then off to the British Telecom Research Establishment for the United Kingdom, where I am a part time doctor working in a large national occupational health service of a nationalised industry. It is rather different from Norsk Hydro, and it is full of boffins and incredibly nasty chemicals. No administration required here. Nice suite comprising two offices and a treatment-examination room. A full time nurse deals with most routine medicals and paper work and I deal with the toxicology and environmental side. Once dropped off to sleep in a union meeting here after a busy Tuesday night on call—not popular. One instance of general practice and occupational medicine not going well together.

Anyway, what toxic chemicals? Local doctor from the Employment Medical Advisory Service came down last week, wanted to know how we dealt with arsenic and cadmium, part of nationwide survey by the Health and Safety Executive. Well, we use them. The most potentially dangerous chemical probably is arsine, a potent haemolytic agent. We inspect the various areas; precautions are very stringent. Clinical or biological monitoring on these workers is considered neither necessary nor useful. The Employment Medical Advisory Service agree. Interesting recent case of a laboratory worker complaining of lethargy. Told her general practitioner that she worked with arsenic. General practitioner agreed that this was the probable cause of her symptoms. Upset everyone somewhat, unions in uproar, quickly sent off hair and urine to the laboratory which reported below normal content of arsenic—peace restored. Back to the surgery, looking in at Norsk Hydro on the way to make sure all is well; nurse knows my whereabouts all week. I hand in my dictaphone tape while there and will sign letters on Friday.

Thursday

This is the best day—my official day off. I use it for a lot of occupational work, and since I visit the Norsk Hydro factories at Avonmouth and Immingham fairly often I use holiday time for this and partners have allowed me an extra week off each year. Expense account rail travel appeals to me. It is a luxury to do paper work without the dreaded telephone lurking nearby. Also on Thursdays I make a monthly visit to London as doctor to London taxi drivers. Great fun, very interesting. Once you have driven a taxi cab round Hyde Park Corner a few times you can understand the stresses. I do a clinic for work related disorders. Have to bone up a bit on rhyming cockney slang and the position of Millwall and Chelsea in the football league tables.

Typical problems are cataracts, driving while on drugs, phobias about such things as driving in the wet, and elderly onset diabetes and peptic ulcer: how on earth does a cab driver take small regular meals? Also, prostatic troubles, there just are no public toilets open in London at night. I also write a column for *TAXI* newspaper. I had better do another one on coronary risk factors. They just do not get any exercise and are also usually overweight and smoke too much. Free London taxis is a nice little perk from this job. The only trouble is that it is usually quicker these days to travel by underground.

Friday

Every other Friday an early start to visit Volvo. They start at 8 am, so I can be there and back before the proper day really begins. All Volvos enter the country through Felixstowe and are driven to Ipswich where they undergo quality control and repair if necessary before distribution. That is where I come in—20 paint sprayers, supposed to start spraying with isocyanate based paint. This group of chemicals, principally toluene-di-isocyanate, is a potent sensitiser and can cause asthma. Volvo has airline breathing apparatus. All paint sprayers have had their base line clinical examination and vitalograph readings carried out, but there are still union objections to possible hazards. More than half of the paint sprayers smoke anyway. Funny how some groups of people smoke more than others. I managed to stop a few while doing their initial medical checks.

Friday lunchtime I spend at British Telecom again. Talking of isocyanates, a man developed asthma here while painting underfloor ducting. It took a bit of detective work as the paint tin was not properly labelled, nor did the data sheet for the paint mention isocyanates. After two absences with asthma for the first time is his life at the age of 50 diagnosis of sensitisation to toluene-di-isocyanate was confirmed and I referred him to the occupational chest clinic at the Brompton Hospital in London as there were bound to be further repercussions. He is now asthmatic, even after having been removed from the toluene-di-isocyanate, and has now become sensitised to other things as well. It is British Telecom's policy to phase out all existing use of isocyanates, and no new uses will be authorised.

Friday always finishes at the port of Felixstowe. This is probably my favourite job. Here we set up the occupational health service from scratch and have two nurses and a full time physiotherapist. When possible when setting up such a service it is best to arrange it so that it can function on its own and the doctor plays a supervisory and consultative role. Although many hazardous substances pass through the port, which is the largest container terminal in England, the main part of the job is fitting people to appropriate jobs. On returning from illness appropriate jobs must be found as the safety of others is also at risk. I invite local general practitioners and hospital specialists to come and look around. One doctor was somewhat astounded when he saw the size of the crane that he had recommended an epileptic worker could operate. There is a 100 ft (30·5 m) vertical metal ladder to climb to get into the driving cab. It seems to be little appreciated that anyone who has been diagnosed as having had an epileptic fit since the age of 5 shall not drive as part of his occupation, and may not hold a heavy goods vehicle licence.

As with the taxi drivers, there are many light moments and very few problems as soon as the men realise that their interests and safety are the prime consideration. We had a young lad recently who was back in full employment holding a licence for heavy goods vehicles 11 months after losing a leg in an accident. After dealing with such problems at the medical centre I usually discuss any problems with the personnel officers and the safety officer. Meetings often adjourn to the local pub which just happens to belong to the port and is located in the middle of the dock.

Confidentiality

A patient's medical adviser will not divulge information without the patient's written consent to it being provided. The consent form should say, for instance, "I agree that a medical report may be obtained from my doctor or hospital specialist by the company occupational health service. I understand that the clinical details in the report will be treated in professional confidence by the occupational health service but that advice based on it may be given to management."

Having obtained a signature on this consent form, I find that I have no difficulty in obtaining full and helpful reports from general practitioners and that I am able to advise management on prognosis, for example, without divulging any clinical details. It is much more usual, however, that management already knows what is wrong (or not wrong) with the employee. It does not therefore matter whether I obtained the information from management or from the patient's general practitioner or whether I already have the information as the patient's own doctor. I can then advise management from the information. In only a few instances has consent not been granted by an employee and this has almost always been because he has been suffering from alcoholism, and in all instances management was already aware of this.

That was a week in the life of a general practitioner with somewhat varied work. It would certainly not suit most doctors and a half day each week in occupational medicine is usually sufficient.

ONE HUNDRED YEARS AGO In an article on the results of an examination of the ears and the hearing of 5,905 school-children, in the *Archives of Otology*, vol. xi, No. 1, Dr. Weil makes some very sensible remarks. He considers, for instance, that every inattentive child should have its ears examined—so convinced is he of the fact that children who are simply hard of hearing are often misjudged and considered inattentive. Of course, it would be much better, he says rightly, if every schoolchild underwent such an examination once or twice every year. It is not necessary that such examination should be made by a medical man, since the teachers could do it, but of course not so well as the physician. It does not require much time or trouble, certainly not more than one hour for each class. The test could be made in the school-room itself if there be no other room convenient. The teacher could place the pupil in one corner of the room, then retire to the other himself, and test each ear separately by whispering. He should cause the words and sentences used to be repeated by the pupil, and could thus easily find out which of them are hard of hearing. This would have the further advantage of calling the attention of parents to the condition of their children, thus preventing injustice from being done to them, and making them profit by early treatment. The author believes that, in the great majority of cases, the children whom he examined could be much benefited by proper treatment, and many of them could be entirely relieved in a few minutes. Probably the great majority, he says, will never be submitted to proper treatment, or at least not until after some years, when the disease will have caused changes which can then be but little benefited. The author thinks that many of the children will be neglected by their parents, even after they become informed of their condition, simply on account of the cost of treatment; and he therefore recommends the appointment of a proper surgeon to be responsible for the health of schools, and whose duty it would be to examine the ears of every child whom the teachers find inattentive, and, when necessary, to give the proper advice. (*British Medical Journal*, 1883; ii:591.)