Quality in Primary Care (2003) 11: 173–80

Research papers

Management of dyspepsia in general practice: an observational study

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ABSTRACT

Aim To determine what medical care is provided in general practice to patients with dyspepsia and to investigate associated factors.

Method Observational study with 331 patients recruited by 183 general practitioners.

Results Reflux-like symptoms were reported by 142 patients, ulcer-like symptoms by 60 patients and non-specific symptoms by 129 patients. Endoscopic investigation was performed in 49 patients. There was no association between the type of symptoms and the order of endoscopic investigation. Acid suppressive drugs were prescribed to the majority of patients (n = 199). Respectively 66% and 64% of patients with reflux-like and ulcer-like symptoms received prescriptions for acid suppressive drugs. Fifty five per cent of patients with non-specific dyspeptic symptoms received a prescription for acid suppressive drugs. In sum 46% of all patients who received these drugs had neither a relapse nor a history of earlier drug treatment or endoscopic investigation. Of all patients who recently had endoscopic investigation (n = 30), 73% received proton pump inhibitors regardless of the results. Most predictive for prescription of proton pump inhibitors was the use of these drugs in an earlier episode. Earlier use of proton pump inhibitors showed a negative association with the prescription of H2-receptor antagonists. Ninety-four per cent of all patients received at least one piece of advice on lifestyle, most frequently the advice was to avoid the use of alcohol.

Conclusion Many patients with dyspepsia received acid suppressive drugs and the most relevant predictor of prescribing these was earlier use of the same drugs. Daily practice contradicts with guidelines that recommend a step-up approach and regular evaluation of medication use. Improvement may depend on the general practitioner's attitude as well as appropriate implementation of evidence-based guidelines.

Keywords: dyspepsia, general practice, guideline medical care

Introduction

Diagnosis and treatment of dyspeptic symptoms in general practice is a topic for an ongoing debate.[1,2] Diagnostic categories such as dyspepsia, upper gastrointestinal disease, gastritis and stomach pain are controversial.[3–7] The timing of gastroscopy in the illness episode has been discussed and uncertainty exists about the relevance of the *Helicobacter pylori* blood test and the breath test.[1,8–10] A step-up approach of drug treatment is defended against a top-down approach.[11] The cost implications of the management of dyspepsia are enormous, as the volume of acid suppressive drugs prescribed is increasing.[12–14] In particular, the use of acid suppression therapy is increasing rapidly, especially for the so-called 'other dyspeptic disorders'.[12,15] Proton pump inhibitors (PPIs) are prescribed for an increasingly wider range of clinical conditions.[16]

A better insight into the actual management of dyspepsia in general practice could help to relate this debate to the actual world and to point out opportunities for improvement. For instance, the reason for prescribing PPIs may be different for general practitioners (GPs) and different from the factors suggested by clinical studies. This study aimed to provide better insight into the clinical management of dyspepsia in general practice, and associated factors.

Methods

A prospective observational study was performed to answer the research question.

Study population

The study was part of a larger study in general practice on practitioners' decisions related to 29 clinical guidelines. From a random sample of 1000 GPs, 200 were recruited for this study. The GPs were informed to include consecutively a maximum of two consultations with patients with dyspeptic symptoms in a period of six weeks.

Data collection

Data were collected between January 1998 and March 1999.[17] A specific prospective self-recording form was developed to document medical care and patient characteristics. The GPs completed the self-recording form immediately after the consultation. The form measured eight aspects of medical care: 1) endoscopy, 2) prescribing antacids, 3) prescribing H2 receptor antagonists (H2RAs), 4) prescribing PPIs, 5) *H. pylori* eradication, 6) giving advice to stop smoking, 7) giving advice to stop the use of non-steroidal anti-inflammatory drugs (NSAIDs) or aspirin, and 8) giving advice to avoid the use of alcohol. In addition, the GPs used the form to record the type of dyspeptic symptoms (reflux-like, ulcer-like and non-specific symptoms), the medical history (relapse, a history of duodenal or gastric ulcer, previous or recent endoscopy, use of prescribed medication in the previous 12 months) and lifestyle (smoking, and the use of NSAIDs or aspirin). For all items boxes could be ticked.

Analysis

Frequencies were calculated for the eight aspects of medical care mentioned above. Next we calculated unconditional and conditional odds ratios (ORs). Dependent variables were the eight aspects of medical care. Independent variables were the patient factors. Independent variables with significant unconditional ORs were included in multivariate logistic models to calculate conditional ORs.

To determine GPs' adherence to the guidelines, key recommendations were selected from the guidelines by a panel of five experienced GPs and used to define performance indicators. Each indicator related clinical decisions to specific patient conditions, using 'if then' algorithms identical to other test instruments (see Box 1).[17]

Results

In total 336 patients were included by 183 GPs. Five of these patients had alarm symptoms like haematemesis or melena and were excluded for further analyses. Of all 331 patients, 164 were younger than 45 years (mean 39.9; standard deviation 7.9). Of all patients, 142 had reflux-like symptoms, most of them (79%) being mild; 60 had ulcer-like symptoms and 129 had non-specific symptoms. Most patients (186) had first consultations in this episode of symptoms, of which 26% concerned a relapse. Forty-four per cent of all consultations were follow-up consultations. About a quarter of all 331 patients had a relapse. Of those patients with a relapse 76% had symptoms which disappeared after earlier drug treatment with acid suppressives (about 50% with H2RAs and 50% with PPIs).

In the next sections we present results for each aspect of medical care: a) what medical care was provided (see Table 1); b) whether the guidelines of

Box 1 Key points of the guidelines of the Dutch College of General Practitioners

Main policy
After exclusion of patients at risk, give advice about lifestyle, if necessary start empirical therapy based on history taking, choosing one of the three working diagnoses (non-specific, reflux-like, or ulcer-like symptoms), with evaluation after two weeks. Selective use of diagnostic tests is recommended.

Empirical therapy

- *Non-specific symptoms*: first antacids; second prokinetics; maximum eight weeks
- *Reflux-like symptoms*: mild – antacids; severe – H2RAs up to eight weeks. If there is no effect after two weeks, double the dose of H2RA or start PPI. The most important PPI indication is endoscopic oesophagitis grade 3 or 4 not reacting on H2RA treatment
- *Ulcer-like symptoms*: H2RA maximum eight weeks; no PPIs
- *H. pylori treatment*: always use when endoscopic investigation shows ulcus duodeni, ulcus ventriculi; only use when there is proven *H. pylori* infection

Endoscopy
Endoscopy is indicated under the following circumstances:

- *Ulcer-like symptoms*: no reaction on H2RA after four to eight weeks or first recurrence
- *Reflux-like symptoms*: no reaction on acid suppressives after eight weeks or second recurrence
- *Non-specific symptoms*: no reaction on antacids or prokinetics after eight weeks, or second recurrence within one year

Testing on *H. pylori*
This should only be carried out by endoscopy.

the Dutch College of General Practitioners were followed (see Table 2); c) which factors related to actual medical care (see Table 3).

Endoscopic investigation

In 49 out of 331 patients, GPs ordered endoscopic investigation. In 33% of these cases this order was adequate according to the guidelines and in 17% of the cases the order was not appropriate. In 40% of the cases it was not possible to determine the appropriateness because there was no recommendation. Further analyses showed that these situations mainly concerned patients with a first relapse of reflux-like symptoms. In the remaining 10% there was too little information about patient conditions to decide which recommendation should be given.

The only patient factor that predicted an order for endoscopic investigation was the existence of relapse. Neither the age of patients nor the type of symptoms was related to the decision to order endoscopic investigation.

Drug treatment

Eighty-five per cent of all patients received drug treatment (n = 331). In follow-up consultations all patients received drug treatment.

Antacids

Antacids were prescribed to 71 patients (21%). In the group of patients who used an NSAID or aspirin, 34% received antacids. When patients had a history of ulcer disease, GPs never prescribed antacids. The prescription of antacids was appropriate according to the national guidelines in 40% of the cases and inappropriate in 49% of the cases.

The likelihood of prescribing antacids was much higher if antacids had been prescribed in previous episodes. The likelihood was smaller in cases of relapse or earlier treatment in the same episode with H2RAs. The nature of symptoms, or patients' age were not related to the decision to prescribe antacids.

Acid suppressive drugs

In respectively 107 and 92 of all patients GPs prescribed H2RAs and PPIs. In total, 46% of all patients who received acid suppressive drugs had neither a relapse nor a history of earlier drug treatment or endoscopic investigation. When patients presented non-specific dyspeptic symptoms (n = 129), 55% received a prescription for acid suppressive drugs (31% H2RAs and 24% PPIs). Regardless of the nature of symptoms, more than 55% of all patients with a relapse (n = 90) received PPIs. Of all patients who recently underwent endoscopic investigation (n = 30), 73% got PPIs regardless of the results.

Table 1 Medical treatment provided (n = 331, row percentages)

Treatments during consultation (n = 331)	Endoscopic investigation (n = 49)	Drug treatment				Advice to stop or avoid		
		Antacids (n = 71)	H2-antagonists (n = 107)	PPIs (n = 92)	Eradication (n = 10)	Smoking (n = 62)	NSAID or aspirin use (n = 83)	Alcohol use (n = 167)
Sex								
Men (n = 147)	16	19	38	24	5	80	29	67
Women (n = 184)	14	24	29	32	2	68	27	39
Age (missing n = 2)								
< 45 years (n = 164)	12	25	33	27	2	86	27	59
45–60 years (n = 87)	22	14	35	34	4	59	35	55
> 60 years (n = 78)	13	25	30	25	5	64	22	32
Symptoms								
Reflux-like alone (n = 142)	16	24	30	36	1	74	29	60
Ulcer-like alone (n = 60)	22	20	42	22	9	77	30	49
Non-specific (n = 129)	11	21	31	24	2	75	26	43
History								
First consultation* (n = 186)	13	27	33	23	3	81	31	54
Relapse (n = 90)	22	13	28	51	2	67	38	53
Recent endoscopy (n = 30)	0	10	17	73	10	50	28	52
Ulcer history (n = 26)	19	0	23	38	19	78	40	46
NSAID or aspirin user (n = 33)	9	34	22	25	3	67	52	45
Smoker (n = 83)	13	20	35	28	1	75	36	63
Previous in this episode treated with								
Antacids (n = 19)	16	42	37	26	5	50	40	58
H2 antagonists (n = 46)	24	2	57	25	2	58	22	43
Prokinetics (n = 17)	12	18	18	47	6	80	19	50
PPIs (n = 30)	23	10	7	73	7	71	32	62

*First consultation in this episode

In 28% of all consultations, GPs prescribed a PPI, which was appropriate in 20% of the cases and inappropriate in 76% of the cases. Of all 331 consultations the guidelines recommended to prescribe PPIs in 7% of the cases. H2RAs were prescribed in 32% of the consultations, which was appropriate in 27% of the cases and inappropriate in 64% of the cases.

Prescription of acid suppressive drugs was mainly predicted by the effectiveness of the type of medication in this episode or earlier episodes of care. A history of recent endoscopic investigation was also predictive for the prescription of these drugs by their GP. Patients with (usually mild) reflux-like symptoms had a higher likelihood of receiving PPIs. Having ulcer-like symptoms had no higher likelihood of receiving one of the two acid suppressive drugs. When symptoms disappeared after treatment with PPIs in an earlier episode, it was very likely that the patient received treatment with the same PPI in this episode. Prescription of H2RAs was associated with prescription of H2RAs earlier in the same episode. There was an inverse relationship between PPI treatment in an earlier episode and treatment with H2RAs in this consultation.

Table 2 Percentage adherence to dyspepsia guideline (*n = 331*)

	Carried out **and** recommended[a]	Carried out and **not** recommended[a]	Recommended[b]	**Not** recommended[b]
Action				
Endoscopic investigation (*n* = 49)	33	17	27	18
Drug treatment				
Antacids (*n* = 71)	40	49	25	18
H2 antagonists (*n* = 107)	27	64	15	78
PPIs (*n* = 92)	20	76	7	91
Eradication (*n* = 10)	20	80	2	96
Advice				
Stop smoking (*n* = 62)	97	n/a	22[c]	n/a
Stop NSAID or aspirin use (*n* = 83)	17	n/a	9	n/a
Avoid alcohol use (*n* = 167)	100	n/a	100	n/a

[a] Percentages of action described
[b] Percentage of all 331 consultations
[c] Percentage of known smokers

H. pylori eradication

Only 3% of all patients received eradication of *H. pylori*, which was appropriate in 20% of the cases and inappropriate in 80% of the cases. Predictors for eradication were recent endoscopic investigation and a history of duodenal ulcer. Neither age nor nature of symptoms appeared to be predictive for *H. pylori* eradication.

Advice

Almost all patients, 94% (*n* = 331), received one or more of the three advices (stop smoking, stop the use of NSAIDs or aspirin, avoid the use of alcohol). The advice to avoid the use of alcohol was most often given (50%). The guidelines recommend giving this advice in all consultations.

Providing this advice was associated with male sex and reflux-like symptoms. The advice to stop the use of NSAIDs or aspirin was associated with a history of disappearance of symptoms after using antacids.

Discussion

This study showed that acid suppressing drugs were prescribed to a large majority of dyspepsia patients in general practice, which confirm results of other studies.[18,19] The role of endoscopic investigation and *H. pylori* eradication is relatively small in medical care for dyspepsia, despite the attention in clinical guidelines for these aspects of medical care. The study provides better insight into the patient factors associated with the medical care provided. Perhaps the most striking finding is that the most important predictor of receiving PPIs was a previous experience that the symptoms had disappeared after the use of PPIs.

As in other studies, requests for endoscopic investigation occurred in a small minority of consultations.[8,20,21] In our study, only relapse of symptoms, but not the age of patients or the nature of symptoms, was predictive for ordering endoscopic investigation. Although patients may be reassured when undergoing endoscopic investigation, they may also see it as a burden because of its invasive

Table 3 Factors related to medical care for dyspepsia (n = 331 patients)

Dependent variables	Predictors	Odds ratio	95% CI
Endoscopic investigation	Relapse	2.18	1.094–4.346
Prescriptions			
Antacids	Relapse	0.194	0.073–0.515
	Disappeared with antacids	6.668	3.679–75.525
	Previous treatment with H2 antagonists	0.117	0.015–0.922
H2 antagonists	Previous treatment with H2	2.789	1.443–5.391
	antagonists	0.076	0.010–0.577
	Disappeared with PPIs	0.196	0.044–0.867
	Previous treatment with PPIs		
PPIs	Reflux-like symptoms	2.098	1.053–4.180
	Disappeared with PPIs	31.284	8.738–112.00
	Recent endoscopic investigation	9.308	2.273–38.112
H. pylori eradication	Recent endoscopic	5.887	1.225–28.300
	investigation	14.997	3.701–60.605
	Ulcer history		
Advice			
Stop smoking	Not significant		
Stop NSAID or	Disappeared with antacids	4.266	1.179–15.440
aspirin use	NSAID or aspirin user	2.981	1.377–6.454
Avoid alcohol use	Man	3.110	1.861–5.197
	> 60 years	0.329	0.181–0.598
	Reflux-like symptoms	1.908	1.145–3.182

character.[1] Patients may also see other explanations for their symptoms as stress events and therefore reject additional investigation.[22]

About half of the patients, who received acid suppressive drugs, had not received endoscopic investigation or drug treatment before. After endoscopic investigation, three-quarters of patients received PPIs regardless of the results of investigation. This contradicts other studies that claim that endoscopic investigation can decrease the prescription of drugs.[23,24] The majority of patients with a PPI prescription appeared to have mild reflux-like symptoms. These findings show that GPs do not follow the complex step-up approach which is included in the Dutch dyspepsia guidelines. One of the possible explanations is the ongoing debate about treatment of dyspepsia.[2,25–27] Some authors have proposed testing and treating *H. pylori* infection in all new dyspepsia patients, while other authors have suggested combining immediate acid suppressive drugs with testing only on *H. pylori* when patients are under the age of 45 years.[28,29] The GP may be influenced by many other factors, including pharmaceutical marketing, patients' preferences, drugs formulations, contacts with medical specialists, continuing medical education, and routine behaviour in the case of repeat prescriptions.[12,19]

This is one of the few studies that provide insight into the advice given in relation to dyspepsia. Each of the factors being male, aged under 60, and having reflux disease were predicting factors for the advice to stop the use of alcohol. We did not collect data on self-medication, although this may influence GPs' prescribing behaviour.[30,31] Further research is needed to explore which factors determine the provision of advice, as this may be the clue for improving prescribing behaviour by GPs.

The patient sample in our study was comparable for age and sex with other studies carried out in general practice.[32] A problem may be that patients were recruited by GPs, which may have caused selection bias. With respect to the nature of

symptoms it was difficult to compare our sample with those from other studies because different classifications were used or the same classification was only used for uninvestigated patients.[18,33] The validity of self-registration of behaviour can be questioned, but a study by Spies and colleagues demonstrated the validity and reliability of the method.[17] Given the higher number of factors that we considered, the findings of this explorative study should be confirmed in future studies.

When the guidelines of the Dutch College of General Practitioners are considered, this study suggests that GPs can improve the quality of care for dyspepsia patients. In particular, the prescribing of acid suppressive drugs can be more efficient. A step-up approach may be more consistent with the culture in general practice, where a wait-and-see approach is often favoured. It is however crucial that the treatment protocol is as feasible as possible. Finally, paper-based or computerised tools could support the decision-making process and enhance implementation of the guidelines.

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Accepted May 2003