

## ORIGINAL ARTICLES

## Consultations and referrals for dyspepsia in general practice—a one year database survey

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### Abstract

**Objective**—Dyspepsia usually presents first in primary care. There are many reasons for referral including urgent problems (for example, haematemesis and melaena), treatment failure, or to exclude serious pathology. Referral will change the population characteristics of primary and secondary care dyspeptics. Many of the guidelines for primary care dyspepsia, however, are based on secondary care research on these referred patients. The aim of this study was to describe the prevalence of dyspepsia in general practice, the characteristics of patients presenting with dyspepsia in primary care, and the clinical and non-clinical determinants of referral in these patients.

**Design**—Cross sectional survey of the consultation records of patients presenting with dyspepsia in primary care during a one year period.

**Methods**—Dyspeptic patients who consulted their general practitioner (GP) in 1997 were selected on the basis of International Classification of Primary Care codes using a computer search among 20 sentinel practices affiliated with the Utrecht Network of General Practitioners. Cross tables and logistic regression analysis were carried out to reveal patient characteristics and determinants of referral.

**Results**—The prevalence of dyspepsia presenting in primary care in 1997 was 3.4% (1740/48958). These patients were usually not referred during the first consultation. Men, elderly patients, and patients with a previous history of dyspepsia were referred to secondary care more frequently than other dyspeptic patients. Patients diagnosed with both irritable bowel syndrome and dyspepsia were at risk of being referred most.

**Conclusion**—Dyspepsia is a frequently occurring complaint in primary care and patients are usually treated by their GP. Besides clinically relevant reasons for referral, dyspeptic patients with irritable bowel syndrome seem to be more “at risk” of being referred to secondary care than other dyspeptic patients. The differences between primary and secondary care dyspeptic patients should be taken into account when interpreting research for guideline purposes. Further research is

**needed to clarify the background of the relation between irritable bowel syndrome and dyspepsia and its influence on referral.**

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**Keywords:** dyspepsia; irritable bowel syndrome; referral; general practice

Studies have shown that 30% of the general population suffer from episodes of dyspepsia at least once a year<sup>1,2</sup> and that primary care physicians are confronted with dyspepsia related problems 2-4 times a week. The vast majority of the patients presenting with a dyspeptic episode for the first time are just treated empirically, and on average only 10% are referred for further investigation during any dyspeptic episode.<sup>3</sup> This way of dealing with patients and their problems is one of the paradigms of general practice and differs from treatment in secondary care: specialist treatment is usually based on the outcome of technical investigations. Empirical treatment as a means of managing low risk dyspepsia in primary care is supported by several guidelines for the treatment of dyspepsia,<sup>4,5</sup> guidelines that should be based on scientific evidence.<sup>6</sup> Ironically, however, most of the scientific data on dyspepsia have been generated in secondary care research carried out on a minority of dyspeptic patients—that is, those referred from primary care.

The decision to refer takes place after a complicated process that includes history taking, diagnostic tests, and empirical treatment. Although there is more certainty about a patient's diagnosis once he/she is admitted to secondary care, it is likely that the empirical general practitioner (GP) diagnosis is erroneous, since the predictive value of a diagnosis based on symptoms only is relatively poor. This poor predictive value may be caused by the misclassification of, for example, gastro-oesophageal reflux disease (GORD), irritable bowel syndrome, or biliary problems for dyspepsia in the referral process.<sup>7,8</sup>

To confirm the dependability of primary care guidelines and to improve their quality, more should first be known about non-referred patients and the process of referral. The aim of this study was to describe the prevalence of dyspepsia presenting in primary care and the characteristics of dyspeptic patients as a means of finding clinical and non-clinical determinants of referral in these patients.

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## Methods

### SETTING AND PATIENTS

The Utrecht Network of General Practitioners comprises six sentinel practices with a total of 20 GPs, who attend to 48 958 patients living in the central part of the Netherlands. These GPs have been registering symptoms, clinical diagnoses, drug prescriptions, and referrals in the network's medical records since 1989 using International Classification of Primary Care (ICPC) codes, according to the ICHPPC-2 criteria and the Anatomical Therapeutic Chemical Classification Index codes.<sup>9-11</sup> Like the other diseases, every consultation on dyspepsia was registered in the network either with a provisional diagnosis, that is, the supposed diagnosis based on the predominant symptom as interpreted by the physician (ICPC codes D01–D29), or with a confirmed diagnosis based on a barium meal, ultrasound, or endoscopic results (ICPC codes D74–D99). The patient population included in the network is representative of the general Dutch population with respect to age, sex, urbanisation, and type of insurance.<sup>12</sup>

### DATA COLLECTION

Patients older than 18 years, who were registered as visiting their physician because of dyspeptic complaints or GORD related provisional or confirmed diagnoses during the year 1997, were included and categorised using ICPC codes (table 1). Dyspepsia was defined according to international standards as episodic or recurrent abdominal or retrosternal pain or discomfort, heartburn, nausea, or other symptoms considered to be referable to the distal oesophagus, stomach, or duodenum.<sup>13</sup> One of the authors (MvB) extracted patient data (anonymously) from the practices' medical records registration system using a computerised search and compiled it into one dataset.

The patients were then subgrouped in "phases" according to the number of consultations and the ICPC characteristics registered in the dataset during 1997. Phase 1 comprised patients with only one complaint or provisional diagnosis (ICPC <D30). In phase 2 (recurrent consultations in one year because of dyspepsia), patients were listed as having more than one complaint or provisional diagnosis. Patients with only one confirmed diagnosis (ICPC >D50) were included in phase 3 (after diagnostic intervention), while those registered with both a complaint/provisional diagnosis and a confirmed diagnosis made up phase 4 (recurrent consultations and referral in the same year). Further baseline information extracted from the medical records included

referrals and candidate determinants of referral: sex, age, comedication during 1997 (non-steroidal anti-inflammatory drugs (NSAIDs) and corticosteroids), comorbidity (for example, constipation or irritable bowel syndrome), and previous history of dyspepsia or irritable bowel syndrome. Referrals included requests for open access gastroscopy and referrals to internal medicine or gastroenterology outpatient clinics that were registered in 1997. Previous history was extracted from the medical records and included the five years before 1997.

### DATA ANALYSIS

Baseline characteristics as well as the phase of the management process were registered for each patient. Crude odds ratios of all candidate determinants of referral were calculated using referral in the same year as the dependent variable. Independent determinants of referral were found using stepwise backward logistic regression analysis, starting with all candidate determinants ( $p < 0.25$  in univariate analysis), and followed by the exclusion of all determinants not independently associated with referral in the model ( $p > 0.05$ ).

## Results

The prevalence of dyspepsia presented in primary care during 1997 was 3.4% (1740/48 958). On average, 24% of these patients were registered with a dyspepsia related referral to secondary care in the same year.

Study of the four phases in the process of diagnosis and referral during the same year revealed that patients with only one provisional diagnosis (phase 1) were referred least often (17%,  $p < 0.01$ ), followed by those registered with more than one ICPC provisional diagnosis (phase 2) or with only one confirmed diagnosis (phase 3). Those patients registered with both a complaint/provisional diagnosis and a confirmed diagnosis (phase 4) were referred most often (68%,  $p < 0.01$ ) (table 2).

The next step of the study examined the specific determinants of referral. We found that 40% of all dyspeptic patients and 45% of those referred were male. In addition, 58% of all patients presenting with dyspepsia and 68% of those referred were older than 45 years of age. One third of the non-referred patients had a previous "dyspeptic" history; this was 44% among the referred patients. Many of the referred patients were also registered with comorbidity irritable bowel syndrome or constipation. The use of medication was not

Table 1 Inclusion criteria for patients >18 years presenting with dyspepsia during 1997: ICPC-1 codes and explanations

| Provisional diagnoses and complaints | Diagnoses                           |
|--------------------------------------|-------------------------------------|
| D02: Stomach pain                    | D74: Carcinoma of the stomach       |
| D03: Pyrosis                         | D77.1: Carcinoma oesophagus         |
| D06.1: Pain upper abdomen            | D78.3: Benign tumour in the stomach |
| D08: Ructus                          | D84.1: Oesophageal diverticulum     |
| D09: Nausea                          | D84.2: Oesophagitis Savary I-IV     |
| D14: Haematemesis                    | D84.3: Oesophageal reflux           |
| D15: Melaena                         | D84.4: Barrett's oesophagus         |
|                                      | D85: Duodenal ulcer                 |
|                                      | D86.1: Gastric ulcer                |
|                                      | D87: Disturbed stomach function     |
|                                      | D87.1: Duodenal ulcer               |
|                                      | D90: Hiatus hernia                  |

**Table 2** Prevalence of referral among patients registered with one or more dyspeptic episodes by the Utrecht Network of General Practitioners in 1997. Total number of patients, number of referred patients, percentage of patients referred, number of non-referred patients, percentage of patients not referred, *p* value, crude odds ratio (OR) of referral given the management phase, 95% confidence interval (95% CI) of OR

| Management phase | Total (n=1740) | Referred (n <sup>1</sup> =424) | % Of total | Non-referred (n <sup>2</sup> =1316) | % Of total | <i>p</i> Value | OR   | 95% CI of OR |
|------------------|----------------|--------------------------------|------------|-------------------------------------|------------|----------------|------|--------------|
| Phase 1          | 1226           | 212                            | 17         | 1014                                | 83         | <0.01          | 0.29 | 0.24 to 0.38 |
| Phase 2          | 111            | 36                             | 32         | 75                                  | 64         | 0.03           | 1.53 | 1.02 to 2.32 |
| Phase 3          | 246            | 70                             | 29         | 176                                 | 71         | 0.06           | 1.28 | 0.94 to 1.73 |
| Phase 4          | 157            | 106                            | 68         | 51                                  | 32         | <0.01          | 8.27 | 5.79 to 11.8 |

Phase 1: patients with only one complaint or provisional diagnosis (ICPC <D30).

Phase 2: patients having more than one complaint or provisional diagnosis (ICPC <D30).

Phase 3: patients with only one confirmed diagnosis (ICPC >D50).

Phase 4: patients registered with both a complaint/provisional diagnosis (ICPC <D30) and a confirmed diagnosis (ICPC >D50).

**Table 3** Basic characteristics of patients registered with one or more episodes of dyspepsia in general practice (n=1740) in 1997. Total number of consultations, number of consultations in referred patients, percentage of patients with the characteristic referred, crude odds ratios (OR) of referral give the characteristic and 95% confidence interval (CI) of OR

| ICPC code or characteristic   | Total No of consultations (n) | Consultations found in referred patients | % Referred of No | <i>p</i> Value | Crude OR | 95% CI of OR |
|-------------------------------|-------------------------------|--|------------------|----------------|----------|--------------|
| D02                           | 450                           | 77                                       | 17               | 0.48           | 0.98     | 0.72 to 1.33 |
| D03                           | 269                           | 45                                       | 17               | 0.43           | 0.95     | 0.66 to 1.36 |
| D06.1                         | 489                           | 31                                       | 16               | 0.40           | 0.93     | 0.61 to 1.41 |
| D08                           | 66                            | 8  | 12               | 0.16           | 0.65     | 0.0 to 1.37  |
| D09                           | 203                           | 36                                       | 18               | 0.46           | 1.04     | 0.69 to 1.54 |
| D14                           | 14                            | 4  | 29               | 0.21           | 1.93     | 0.60 to 6.21 |
| D15                           | 22                            | 9  | 41               | <0.01          | 3.41     | 1.44 to 8.09 |
| Male                          | 701                           | 191                                      | 27               | 0.13           | 1.29     | 1.04 to 1.62 |
| Age >45 years                 | 1015                          | 287                                      | 28               | <0.01          | 1.69     | 1.34 to 2.13 |
| Previous history of dyspepsia | 580                           | 1687                                     | 32               | <0.01          | 1.85     | 1.48 to 2.32 |
| Irritable bowel syndrome      | 261                           | 78                                       | 30               | 0.02           | 1.40     | 1.04 to 1.87 |
| Constipation                  | 140                           | 51                                       | 36               | <0.01          | 1.88     | 1.31 to 2.74 |
| NSAID use                     | 474                           | 129                                      | 27               | 0.05           | 1.23     | 0.96 to 1.56 |
| Corticosteroid use            | 79                            | 25                                       | 32               | 0.08           | 1.46     | 0.89 to 2.38 |

For ICPC codes, see table 1.

NSAID: non-steroidal anti-inflammatory drug.

associated with referral, although 28% of the included patients were taking NSAIDs (table 3).

Urgent problems (haematemesis and melaena) were rarely registered; however, if registered, they were strongly associated with referral. After taking into account the provisional diagnoses, factors independently associated with referral included sex, elderly status, a previous history of dyspepsia, and the codiagnosis of irritable bowel syndrome (table 4).

## Discussion

Our research showed that 1740 of 48 958 patients (3.4%) consulted their GP during 1997 because of dyspepsia related problems and that those patients who consulted only once were referred the least. We also found that urgent problems such as melaena and haematemesis frequently led to referral, but that they were rarely registered (table 3). Moreover, besides these problems, the patient characteristics of age, sex, previous history of dyspepsia, and the codiagnosis of irritable bowel

syndrome were found to have independent roles in the referral process for dyspepsia.

The strength as well as the weakness of registering via a GPs' network is that the data are drawn from daily life. We realise that this study measured the provisional diagnoses or working hypotheses of GPs instead of objective symptomatology. Moreover, although urgent problems have a high impact on decision making, we could only partly compare their relative value with less defined syndromes like "pain in the stomach" or "heartburn", because the GPs obviously chose the most serious symptom to be registered first. Nevertheless, we found that patients presenting with urgent problems were referred more frequently than those without such symptoms (tables 3 and 4). This kind of registration database does not reveal the reasons why not all patients with urgent problems were referred nor what the results of the referrals were for these symptoms. In addition, we were not able to include more relevant potential determinants of referral in this survey, because the GPs in the network did not register them.

Although the use of NSAIDs or corticosteroids did not turn out to be an independent determinant for referral, the number of NSAID users was significant (28%). Compared with the frequency of NSAID use by the entire network population older than 18 years (16%), patients presenting with dyspepsia used NSAIDs more often.<sup>4</sup> Since NSAIDs might be one of the causes of dyspeptic complaints, these differences should urge GPs to reconsider NSAID use even more when confronted with a dyspeptic patient.

**Table 4** Independent determinants of referral to internal medicine or gastroenterology outpatient clinics among patients with dyspepsia in primary care. Characteristics, adjusted odds ratios (OR), 95% confidence interval (95% CI) of OR, *p* value

| Determinant                   | OR   | 95% CI of OR | <i>p</i> Value |
|-------------------------------|------|--------------|----------------|
| Haematemesis                  | 2.79 | 1.36 to 5.77 | <0.01          |
| Melaena                       | 2.76 | 1.34 to 5.70 | <0.01          |
| Irritable bowel syndrome      | 1.36 | 1.00 to 1.86 | <0.01          |
| Constipation                  | 1.48 | 1.02 to 2.18 | <0.01          |
| Male                          | 1.37 | 1.09 to 1.73 | <0.01          |
| Age >45 years                 | 1.52 | 1.19 to 1.93 | <0.01          |
| Previous history of dyspepsia | 1.67 | 1.32 to 2.12 | <0.01          |

Although our finding that 3.4% of the population sought help for dyspeptic problems during 1997 is comparable to the figures in the literature,<sup>3, 14</sup> the 24% referral rate we noted for the entire dyspeptic population is higher.<sup>15</sup> This may be because some of our referrals included previously diagnosed patients. The referral percentage (17%) of patients registered in 1997 with just one complaint (without a confirmed diagnosis, phase 1), however, does resemble that in the literature. Warndorff *et al*, for example, conclude that, at first consultation and after three months of follow up, respectively, 4% and 11% of all dyspeptic patients are referred to a specialist and 4% and 13% for endoscopy.<sup>3</sup>

Demographic variables were also analysed in our study. We found that gender was an independent variable for referral. For example, women formed the majority of dyspeptic patients, while more men were referred. Both of these findings are consistent with those in the literature: 62% and 72%, respectively.<sup>14, 16</sup> Other studies have also shown that women are more aware of the symptoms they experience and report them more readily to their GP.<sup>17</sup> In contrast, men wait longer before they consult a physician.<sup>18</sup> Furthermore, women present more often with constipation, irritable bowel syndrome, or abdominal complaints without a confirmed diagnosis, while men are more frequently diagnosed with oesophageal or gastric carcinoma or duodenal ulcer. Age was another independent determinant of referral in this study and confirms the findings of others: the higher the age, the higher the chance of organic pathology.<sup>19</sup>

The one year prevalences of irritable bowel syndrome and constipation in the general practice literature are both 1%.<sup>15</sup> Similarly the one year prevalences for irritable bowel syndrome and constipation in the entire Utrecht network population are 1.43% and 0.8%, respectively.<sup>12</sup> The patients included in our research on dyspepsia, however, had much higher percentages (15% and 8%, respectively); in fact, comorbidity with irritable bowel syndrome turned out to be an independent determinant of referral. It is a well known fact that a relationship exists between dyspepsia (originating in the proximal digestive tract) and large bowel problems.<sup>17, 20</sup> Delayed emptying of the stomach may also be influenced by constipation and irritable bowel syndrome and might lead to a cluster of symptoms resembling the clinical picture of dyspepsia.<sup>21-23</sup> Besides this pathophysiological explanation for the higher referral percentage, irritable bowel syndrome can cause the patient to worry, which may result in frequent primary care consultations and thus motivate the GP to refer the patient.

Considering the determinants of referral, we found that urgent problems clearly play a part in the decision to refer. Furthermore, the roles of age, sex, and previous history must be taken into account. The role of irritable bowel syndrome comorbidity, however, needs further attention. Reasons for consultations about irritable bowel syndrome include anxiety about a serious disease, the amount of pain, the

number of symptoms, and the psychological disturbance whereby minor symptoms are experienced as more serious.<sup>24, 25</sup> Patients with irritable bowel syndrome also suffer more frequently from symptoms of dyspepsia.<sup>26</sup> Most of the problems of irritable bowel syndrome and dyspepsia, however, are functional, which means that no organic pathology will be found during further investigation. Nevertheless, since both have a tendency to recur and since irritable bowel syndrome can resemble or aggravate the symptoms of dyspepsia, patients may become anxious. Most, therefore, are referred in order to prove that there is no serious organic disease. Such referrals may be justified since normal findings in gastroscopy can lead to a reduction in consultations,<sup>27</sup> prescriptions, and work absenteeism.<sup>28</sup>

In conclusion, our study confirms that frequent consulters, patients with a previous history of dyspepsia, men, and elderly people will be seen more often among secondary care dyspeptics than among those treated in primary care. Furthermore, we found that more patients with a codiagnosis of irritable bowel syndrome were referred. One should be aware, therefore of the differences between primary and secondary care dyspeptic populations, especially when the results of research on dyspeptic patients are interpreted for use in guidelines. The relationship between dyspepsia and irritable bowel syndrome in primary care still needs more attention and should lead to further research into its non-clinical consequences.

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## Medical Anniversary

### Thomas Hodgkin, 17 August 1798

Thomas Hodgkin (1798-1866) was born into a Quaker family at 14 Penton Street, Pentonville, London but in 1815 moved to Tottenham. His father was a successful private tutor. He became a student at Guy's Hospital (1819) and then at Edinburgh (1820), and graduated MD in 1823. From his meetings with Laennec in Paris, he brought the stethoscope back to London. He became first lecturer in morbid anatomy and curator of the museum at Guy's Hospital, thereby forming the great triumvirate of teachers with Bright and Addison.

Hodgkin was immortalised by his article entitled "On some of the morbid appearances of the absorbent glands and spleen" which appeared in *Medico-Chirurgical Transactions* (1832;17:68). In this paper he described the postmortem appearance of seven cases in which he noticed the combination of gross enlargement of most of the lymph nodes of the body, and in six cases also enlargement of the spleen.

In 1866 he accompanied his patient and friend Sir Moses Montefiore to the Holy Land on a journey of mercy to alleviate the sufferings of the Jewish community there. He died from dysentery on 4 April 1866 and is buried in Jaffa where Montefiore erected a tombstone over Hodgkin's grave in the British cemetery.—*D G James*

