

One-year prognosis of abdominal complaints in general practice: a prospective study of patients in whom no organic cause is found

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SUMMARY

Background. Data on the one-year prognosis of patients with non-organic, non-acute abdominal complaints in primary care are lacking. Knowledge of prognostic determinants could be helpful in management and health education.

Aim. To describe the prognosis after one year of non-organic abdominal complaints in general practice, and to show how this relates to socio-demographic factors, medical history and psychological problems.

Methods. The one-year prognosis of patients with non-organic abdominal complaints in a primary care setting was analysed in a prospective study (n = 756). Clinical and psychological factors were measured and their relative risks regarding unfavourable prognosis were calculated one year after the first consultation.

Results. In 68% of the patients examined, the abdominal complaints had either improved or disappeared by the end of the first year. Female sex and depressive mental state were associated with an unfavourable prognosis. Clinical symptoms that were significantly associated with persisting complaints were a combination of abdominal pain, flatulence and bowel irregularities; a specific description of the character of the pain by the patient; looser stools at the onset of the pain; long duration or recurrence; pyrosis; absence of visible distension; and epigastric localization of the pain or tenderness.

Conclusions. The prognosis after one year of non-acute abdominal pain in general practice is better than that reported from studies of outpatient populations. Female sex, depressive mood and some clinical parameters are associated with persistent complaints one year after presentation.

Keywords: prognosis; outcome; abdomen; gastrointestinal diseases.

Introduction

Abdominal complaints are a frequent reason for visiting a general practitioner (GP): the incidence rate is 15 per 1000.¹ To our knowledge, the prognosis of non-organic abdominal complaints in general practice has not been studied. Previous research has

been concerned with patients who were referred to secondary care settings. In these populations, non-organic abdominal complaints show a chronic course. An unfavourable prognosis has been found in patients who have long-lasting and severe complaints, in patients with psychosocial problems, and in patients who are using medication. Male sex, an age of 30 years or under, and altered defecation were associated with a favourable prognosis (Starmans R *et al*, unpublished ms).

This study aims to describe the prognosis after one year of non-organic abdominal complaints in general practice, and to show how socio-demographic factors, medical history findings and psychological problems are associated with prognosis.

Methods

Patients aged 18–75 years, who had consulted their GP regarding 'new' abdominal complaints (the first in at least three months) that had lasted at least two weeks, and who gave their informed consent to participate, were entered into a follow-up study by 80 GPs in Limburg, The Netherlands, over a period of one year.² All patients were asked to fill in a standard questionnaire, which included patient history, and also some psychological questionnaires: the Zung-questionnaire for depression,³ the Self-esteem and Social Inadequacy scales of the Dutch Personality Inventory,⁴ and the VOG (Vragentyst Onderzoek Ervaren Gezondheid), a short general health questionnaire.⁵ The areas covered in these questionnaires were identified in earlier studies as factors relating to prognosis (Starmans R *et al*, unpublished ms).² The results of the physical examinations and laboratory tests were registered by the GPs.

Outcome

Participants were investigated invasively (for example by endoscopy) only when the GP decided that such techniques were clinically indicated. All patients were followed up by the researchers for at least one year. All events during the follow-up period were recorded by the researchers after asking the GP and studying the practice medical records. The final diagnoses made after the follow-up period were classified according to the *International Classification of Problems in Primary Care (ICPC)*⁶ by a panel of three GP-authors (JM, RS, GF) using all relevant information from the medical records; the panel was blinded for the results of the questionnaires. When no agreement was reached within the panel (which happened in nine cases), a consensus was obtained by consulting a group of professors in the departments of internal medicine and general practice at the University of Limburg (now University Maastricht).

The diagnoses were grouped into two categories: organic and non-organic disorders (Table 1). For this paper, analyses are restricted to the non-organic group. The prognosis after one year was classified by the above panel into favourable (disappearance or amelioration of symptoms) or unfavourable (persistence or worsening of symptoms), using all available information from the GP's office: professional opinion of the attending GP, number of consultations attended, and character of complaints presented to the practitioner during the year after initial consultation.

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Table 1. Final diagnosis and symptom diagnosis in patients with non-acute abdominal complaints in general practice ($n = 933$). Coded according to the *International Classification of Problems in Primary Care (ICPC)*.

ICPC-code/diagnosis	<i>n</i>	%
<i>Non-organic</i>		
D01-D29 abdominal symptoms (no diagnosis)	589	63.1
D87 non ulcer dyspepsia	71	7.7
D93 irritable bowel syndrome	138	14.8
<i>Organic</i>		
D70 infectious diarrhoea	4	0.4
D73 other presumed infection of digestive system	10	1.1
D74 malignant neoplasms in stomach	2	0.2
D75 malignant neoplasms in colon, rectum	4	0.4
D76 malignant neoplasms in pancreas	2	0.2
D77 malignant neoplasms in other and unspecified sites	2	0.2
D78 benign neoplasms in digestive tract	8	0.9
D84 disease of oesophagus	4	0.4
D85 duodenal ulcer	16	1.8
D86 other peptic ulcers	9	1.0
D88 appendicitis	1	0.1
D89 inguinal hernia	1	0.1
D90 hiatus (diaphragmatic) hernia	3	0.3
D91 other abdominal hernia	1	0.1
D92 diverticular disease intestines	13	1.3
D94 chronic enteritis/ulcerative colitis	12	1.2
D95 anal fissure/perianal abscess	4	0.4
D98 cholecystitis/cholelithiasis	3	0.3
D99 other disease digestive system	1	0.1
K96 haemorrhoids	6	0.7
R84 malignant neoplasms in trachea/bronchus or lung	2	0.2
U70 pyelonephritis/pyelitis, acute	1	0.1
U71 cystitis/other urinary infection	2	0.2
U75 malignant neoplasm in kidney	1	0.1
U95 urinary calculus	4	0.4
U99 other diseases of urinary system	2	0.2
X75 malignant neoplasm cervix	1	0.1
X77 other malignant neoplasms in reproductive tract	2	0.2
X78 fibroid/myoma (uterus/cervix)	8	0.8
X99 other disease of female reproductive tract	6	0.6
Total	933	100

Analysis

The relative risks of an unfavourable prognosis after one year were calculated with their 95% confidence intervals for the various clinical, socio-demographic and psychological factors. Relative risk was calculated as the ratio of the risk of unfavourable prognosis after one year in patients with a certain attribute to the corresponding risk in patients without this attribute. Items associated with persisting complaints after one year (unfavourable prognosis), and for which the confidence interval did not include 1, were entered into a multiple stepwise forward logistic regression analysis to identify independent predictors of unfavourable prognosis, taking the included variables into consideration simultaneously. All analyses were performed using *BMDP* (Biomedical Data Processing).

Results

Altogether, 933 patients with non-acute abdominal complaints were identified. Of these, 135 (14%) had an organic disorder, 11 died during the follow-up period, without evidence of organic gastrointestinal disease, and in 31 cases a non-organic diagnosis was made but data on the persistence or absence of the abdominal complaints was lacking. Therefore, the study population to be analysed consisted of 756 patients who survived the follow-up period without signs of organic gastrointestinal disease. Of these patients, 589 had localized abdominal pain (either epigastric or elsewhere) without fulfilling the criteria for non-ulcer dyspepsia or irritable bowel syndrome (Table 1). Endoscopy of the lower or upper gastrointestinal tract was performed in 20% of the study population during the first year after presentation. The mean age of the population was 43 years (standard deviation 15), there were twice as many women as men, and in 514 patients (68%) the abdominal complaints had either improved or disappeared by the end of the first year.

In Table 2, the prognosis after one year is presented in relation to background characteristics. Men showed a significantly better prognosis than women. All other factors were unassociated with prognosis. In Table 3, clinical and laboratory findings are related to prognosis. Symptoms having a statistically significant association with persisting complaints were as follows:

- A combination of abdominal pain, flatulence and bowel irregularities
- A pain described by the patient as sharp, burning, and intense
- Looser stools at the onset of the pain
- Complaints which, at the time of the initial consultation, were long-lasting or recurrent
- Pyrosis
- The absence of visible abdominal distension, and
- Epigastric localization of pain or tenderness.

In Table 4, patients' scores from psychological questionnaires are related to the prognosis after one year. Only depression was significantly associated with an unfavourable prognosis.

Logistic regression analysis found three independent predictors of persisting complaints: the presence of epigastric pain or tenderness, the absence of visible abdominal distension, and the combination of abdominal pain, flatulence and bowel irregularities.

Discussion

In this prospective study we found that, in general practice, a patient with non-organic, non-acute abdominal complaints had a relatively good prognosis after one year. Female sex, certain clinical findings and depression were predictors of a less favourable prognosis (in which symptoms persisted or were worsening after one year). However, even when these characteristics were present, prognosis was generally favourable.

This prospective study has several strengths. The patients had a broad spectrum of abdominal complaints and were drawn directly from general practice clinics. There was a clear inception cohort and the dropout rate was low. We avoided expectation bias (where the assessment of status at follow-up is influenced by knowledge of the profile of prognostic determinants at baseline) by assessing the potentially prognostic factors using a questionnaire on presentation to the GP.⁷ The panel of practitioners assessing the outcome were blinded with regard to the presence or absence of these factors. The dropout rate (41/797 = 5%) was relatively low compared with other studies (Starmans R *et al*, unpublished ms). The two reasons for patients being excluded

Table 2. Relationship of selected background and socio-demographic variables in patients with non-organic abdominal complaints ($n = 756$) to the persistence or absence of complaints after one-year follow-up.

Characteristic	Number of patients	Number with complaints at follow-up	RR* (95% CI)
Female sex	486	153	
Male sex	240	57	1.32 (1.02–1.72)**
Age < 30 years	348	101	
Age ≥ 30 years	394	133	0.86 (0.69–1.07)
Married – currently	168	57	
Unmarried	495	140	1.20 (0.93–1.55)
Insurance – national health	469	145	
Insurance – private	142	38	1.16 (0.85–1.57)
Abdominal pain as a child	282	89	
No abdominal pain as a child	331	99	1.06 (0.83–1.34)
Abdominal pain in a parent	121	39	
No abdominal pain in a parent	322	90	1.15 (0.84–1.60)
Smoking – currently	272	79	
No smoking	388	116	0.97 (0.76–1.24)
Alcohol consumption – regular	374	103	
No alcohol consumption	269	86	0.86 (0.68–1.09)
Any surgical operation in digestive tract	222	74	
No surgical operation in digestive tract	520	159	1.09 (0.87–1.37)
Total cohort	756	240	

*RR = relative risk. **95% confidence interval excludes 1; $P < 0.05$.

from the study were insufficient information regarding prognosis in the practitioner's files ($n = 30$), and death without signs of an organic gastrointestinal disease ($n = 11$).

A limitation of this study is the diagnostic procedure. It cannot be ruled out with certainty that no relevant organic diagnoses were made during the follow-up period of at least one year because of the varying pattern of clinical investigations in individual patients. Relevant diagnoses discovered after the follow-up period would change the distribution of patients with organic and non-organic disease. It was decided not to examine all patients invasively at presentation, partly for reasons of health and inconvenience to the patient, and partly because of the cost. Furthermore, even when a patient had a full examination, including colonoscopy and oesophageal pH measurements, the diagnosis could still have been missed. Conversely, intensive screening at the time of presentation could have resulted in false positive or clinically irrelevant findings. Therefore, it could not be determined with certainty whether a diagnosis such as gastroesophageal reflux disease was present or absent in the non-organic group.

For these reasons some misclassification may be present in this study, despite the intensive clinical follow-up period. However, since all clinically manifested diagnoses have been taken into consideration, these prognostic findings are relevant to practitioners, who need to assess the clinical course to be expected in their patients. In clinical practice, assessing a prognosis for the clinical course in the year to come is highly important.

In our study we found that a remarkably high percentage of patients showed an improvement in their abdominal complaints: 68% showed a favourable course after one year. In the literature this percentage ranges from 12% to 50% (Starmans R *et al.*, unpublished ms).² All these studies were located in outpatient clinics. The duration of follow-up in these studies varied from two to seven months in one study to at least 17 months in the others, with a maximum of six years. Apparently, the prognostic spectrum of non-acute abdominal pain in general practice is much better than in any outpatient study. This agrees with the expected selection effects in relation to referral: patients with

more severe disease or with unfavourable prognosis are selectively referred to secondary care.⁸

A better prognosis in men is confirmed in one study,⁹ but many other studies found that a patient's sex was not relevant.^{10–14} Diarrhoea and constipation have been found to be associated with better prognosis,⁹ our data suggests that the reverse is true. Two other studies did not find any influence of bowel habits on prognosis.^{11,13} Whether an abdominal problem really has been resolved in a certain patient could not be answered in this study, which simply registered medical consultations and the use of medical care for abdominal complaints.

The association between psychological problems (depression and anxiety) has been substantiated in many studies.^{10,13,15–17} Patients with psychological distress use medical services more frequently. It has also been shown that such patients are more likely to seek medical care for irritable bowel disease and abdominal pain. In a study in a Dutch outpatient population,¹⁰ psychological problems (among others) remained significantly independent predictors of an unfavourable prognosis, even after adjustment for the influence of socio-demographic and clinical factors. In our study, depression did not remain significant in multivariable analysis. This suggests that outpatient populations have psychological characteristics other than those found in general practice populations.

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Table 3. Relationship of clinical and laboratory findings in patients with non-organic abdominal complaints to the persistence or absence of complaints after one-year follow-up.

Clinical findings	Number of patients	Number with persisting abdominal complaints after follow-up	RR* (95% CI)
Abdominal pain, flatulence and irregularities of bowel movements	579	181	
No combination of above symptoms	148	29	1.60 (1.13-2.26)**
Symptoms for more than 2 years at presentation	109	41	
Symptoms for less than 2 years at presentation	618	169	1.38 (1.05-1.81)**
Specific description of abdominal pain***	645	197	
No specific description of pain	82	13	1.93 (1.15-3.21)**
Alternating constipation and diarrhoea	304	94	
No alternating constipation and diarrhoea	423	116	1.13 (0.90-1.42)
Pain at night	306	96	
No pain at night	421	114	1.16 (0.92-1.46)
Looser stools at onset of pain	406	131	
No looser stools at onset of pain	321	79	1.31 (1.03-1.66)**
Pain eased after bowel movement	300	96	
No ease of pain after bowel movement	427	114	1.20 (0.95-1.51)
More frequent stools at onset of pain	257	77	
No more frequent stools at onset of pain	470	133	1.06 (0.84-1.34)
Mucus through rectum	152	41	
No mucus through rectum	575	169	0.92 (0.69-1.23)
Visible distension of the abdomen	161	62	
No visible distension of the abdomen	566	148	0.68 (0.54-0.86)**
Feeling of distension	104	35	
No feeling of distension	623	175	1.20 (0.89-1.61)
Duration of more than six months or more than 10 previous occurrences	201	72	
Duration no more than six months or no more than 10 previous occurrences	526	138	1.37 (1.08-1.73)**
Epigastric pain and tenderness	447	148	
No epigastric pain or tenderness	280	62	1.50 (1.16-1.93)**
Pain is constant or unrelieved by food or medication	356	97	
Pain not constant; relieved by food or medication	371	113	0.90 (0.71-1.12)
Occult blood in stools	63	14	
No occult blood in stools	664	196	0.75 (0.47-1.21)
Vomiting since pain began	109	38	
No vomiting since pain began	618	172	1.25 (0.94-1.67)
Irregularities of bowel movements	605	182	
No irregularities of bowel movements	122	28	1.31 (0.93-1.85)
Pyrosis	305	101	
No pyrosis	422	109	1.28 (1.02-1.61)**
Pain aggravated by food	300	95	
Pain not aggravated by food	427	115	1.18 (0.94-1.48)
Flatulence	465	146	
No flatulence	262	64	1.29 (1.00-1.65)
Borborygmi	135	47	
No borborygmi	592	163	1.26 (0.97-1.65)
Weight loss > 1 kg in 4 weeks	206	54	
No weight loss	527	156	0.91 (0.70-1.19)
ESR > 20	53	13	
ESR ≤ 20	674	197	0.84 (0.52-1.37)
WBC > 10x10 ⁹ l ⁻¹	51	14	
WBC ≤ 10x10 ⁹ l ⁻¹	676	196	0.95 (0.60-1.50)

*RR = relative risk. **95% CI excludes 1.0; $P < 0.05$. ***One or more of the following pain characteristics: burning, cutting, intense, terrible, feeling of pressure, dull, gnawing.

Table 4. Relationship of scores from psychological questionnaires at the beginning of the follow-up period to the persistence or absence of symptoms one year later.

Psychological questionnaire	Number of patients	Complaints after follow-up	RR* (95% CI)
Depression (Zung)	181	66	
No depression	418	111	1.37 (1.07-1.76)**
Psychobiological stress (VOEG)	499	153	
No psychobiological stress	123	28	1.35 (0.95-1.91)
Low self-esteem (NPV)	562	164	
No low self-esteem	165	46	1.05 (0.79-1.38)
Social inadequacy (NPV)	249	75	
No social inadequacy	478	135	1.07 (0.84-1.35)

*RR = relative risk. **95% confidence interval excludes 1.0; $P < 0.05$.

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