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ORIGINAL PAPERS

Periodic gastroenterology and hepatology meetings with primary care. Reasons for consultation

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ABSTRACT

Introduction: care overload, aging of population, and increased chronic diseases lead to increased referrals from primary care, which may sometimes overload the health system. Thus, different interventions have been carried out attempting to improve these aspects.

Objectives: to assess the most frequent causes of consultation of general physicians, both in joint consultations and clinical sessions held jointly with specialist consultant in primary care, in the urban and rural setting, and the influence on referrals to first consultations of gastroenterology.

Material and methods: a mainly training type of intervention was carried out, consisting of regular meetings in both urban and rural primary care center, to perform joint consultations and clinical sessions on patients and topics related to the specialty of gastroenterology. The intervention period (divided in two subperiods) was compared with a control period.

Results: most reasons for consultation were those corresponding to lower gastrointestinal tract, followed by liver disease and upper gastrointestinal tract. Significant differences were only found in distribution of diagnoses between the two centers in joint consultations. There was a relative (percent) decrease in referrals at the global level in both subperiods, only significant in the first (51.45 %), as well as in rural setting (45.24 %).

Conclusion: common consultations motifs were similar in urban and rural settings, with some relevance of lower gastrointestinal tract disease. Most of them can be solved at primary care, with the help of consultant specialist. There is impact on referrals to the outpatient first consultations of gastroenterology, mainly in rural setting.

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INTRODUCTION

Coordination between different health care levels is essential to obtain a quality care, with rational use of resources. However, coordination between primary care and specialized care is complex, as there is sometimes a separation and lack of knowledge between the two (1).

There is a series of factors that may influence the relationship between care levels, such as care overload that must be faced by both primary and specialized care, the growing importance of control of healthcare expenditure, better patient access to information on health topics, the development of new technologies and the increased number of these chronic diseases. Population aging has led to an increased morbidity, particularly in the incidence and prevalence of these diseases. These patients who are normally being treated by more than one physician are particularly susceptible to the adverse consequences of inadequate coordination in healthcare (2). All these aspects lead

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to a progressive increase in referrals from primary care to specialized care, so that the health system is often overwhelmed and unable to meet the growing demand and the patient is often dissatisfied with the referral process (3-5).

Although there is little evidence on the interventions that improve referral to specialized care, different strategies have been carried out for the purpose of improving the relationship between levels and therefore to achieve more effective care of patients, such as the distribution of clinical guidelines, conduct of high resolution consultations (6,7), rapid diagnosis circuits (8), etc., with different results in terms of referral and delays, since sometimes it has been able to reduce the delay but at the expense of increasing referrals.

The care of patients with gastrointestinal symptoms represents 10 % of the reasons for consultation in primary care (1,9,10) and it is estimated that referrals to the gastroenterology outpatient clinics may be up to 4.2 % (11,12). The conduct of joint consultations in gastroenterology with the presence of a specialist at the health center, to assess patients together with their primary care physician and to perform training sessions, may be an effective alternative that not only reduces referrals to hospital clinics but also improves patient satisfaction. We thus assessed the reasons for consultation that were most often the cause of referral, in order to provide greater support for this type of intervention, as well as its impact on first outpatient consultations of Gastroenterology, that has been widely treated in other study (13).

MATERIALS AND METHODS

A prospective, descriptive observational study was conducted, analyzing an intervention carried out in two primary care centers.

The intervention carried out was mainly of a training type, consisting of regular meetings (approximately monthly) in an urban and another rural center, belonging to the health area of the Hospital Río Hortega in Valladolid (Spain), to perform joint consultations and clinical sessions on patients and topics of the specialty of gastroenterology and hepatology. This intervention was carried out by a gastroenterology physician accompanied by a fourth year resident of the specialty. In joint consultations, patients were treated with their corresponding general practitioner, who had previously selected them, without any previous established criteria. These visits had an approximate duration of 75 minutes. During another 60 minutes, other cases or problems were discussed informally in a clinical session without the physical presence of the patient. In these, other issues related to the referrals were also discussed, particularly as refers to their appropriateness, as well as other topics of clinical or scientific interest.

The reasons for consultation of the patients treated in the joint consultations or discussed in a clinical session were collected.

The intervention period includes from November 2005 to June 2008 both inclusive, divided in two subperiods:

1. January 2006 to June 2007.
2. July 2007 to June 2008

In relation to the study of referrals to outpatient consultations, the results were expressed as relative or percent changes in them, as compared with a control or reference period (November 2004 to October 2005). We did not include the two months previous to the intervention (November and December 2005), since they were considered as an adaptation period to the intervention, which was started immediately after the control period.

The statistical procedures for description of variables were frequency distribution for categorical variables and mean and standard deviation for quantitative variables. The data were analyzed using the MS Excel 2007 program.

For the study of the changes induced on referrals, it has been calculated de mean of them per month. The general practitioners with less than 10 referrals during the reference or control period, have been grouped as only one person, to adjust the data to a normal distribution. As variable of interest has been considered the relative or percent change in the number of referrals of each subperiods of the intervention in relation to the reference period. The corresponding confidence intervals were estimated at 95 %. The used methodology is based in studies of finite populations (14).

This study was approved by the hospital research committee.

RESULTS

The two health centers performed a similar overall healthcare activity, despite there being differences in the population assigned to each center, more than 14 years old. The characteristics of both centers of the study before the intervention are shown in table I. In table II, are expressed the number of primary care doctors, population assigned and health care activity of both centers during the different years of the study.

A total of 27 interventions were carried out in the urban center and 28 in the rural center.

There were separated, on one hand, into joint consultations where the patient was present, and on the other hand, patients discussed in a clinical session without physical presence of the patient.

On analyzing the patients from both joint consultations and those assessed in a clinical session, a overall predominance of women was detected, except for patients in the clinical session from the rural center, these findings being non-significant. The mean age of the patients from the rural center was lower than in urban center (51.81 and 55.50 years, respectively), and this difference was maintained after separating joint consultations and clinical sessions. It was observed that overall patients discussed in a clinical session had a higher mean age, both in the urban and rural

Table I. Characteristics of the centers where the intervention was carried out during 2005, previous to the intervention

Characteristics (2005) (reference or control period)	*Urban center*	*Rural center*
Number of general physicians	15	13
Population belonging to the center	19,152	10,515
Health care activity (total number of patients seen in first and follow-up consultatios/year)	61,977	67,002
Mean of patients referred/month	21.06	10.5
Monthly referral rate per 10,000 population	10.99	9.98

Data correspond to the population more than 14 years old.

Table II. Characteristics of the centers where the intervention was carried out during 2005, previous to the intervention and during the following years in that the intervention took place

Center	*Year*	*Number of general physicians*	*Population belonging to the center (> 14 years)*	*Health care activity (number of patients seen/ year)*
Urban	2005	15	19,152	61,977
	2006	15	19,000	68,737
	2007	14	18,797	72,010
	2008	15	18,406	73,185
Rural	2005	13	10,515	67,002
	2006	13	10,614	74,050
	2007	13	10,685	79,697
	2008	13	10,728	79,975

Data correspond to the population more than 14 years old.

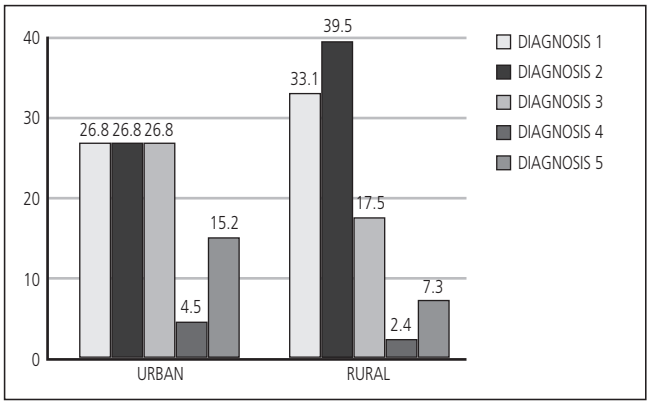

Fig. 1. Diagnosis evaluated in joint consultations (n = 112 [urban]; n = 124 [rural]) expressed as percentage of total diagnosis (p = 0,04). Diagnosis 1: Upper gastrointestinal tract (GIT) diseases. Diagnosis 2: Lower GIT diseases. Diagnosis 3: Liver diseases. Diagnosis 4: Bilio-pancreatic diseases. Diagnosis 5: Others.

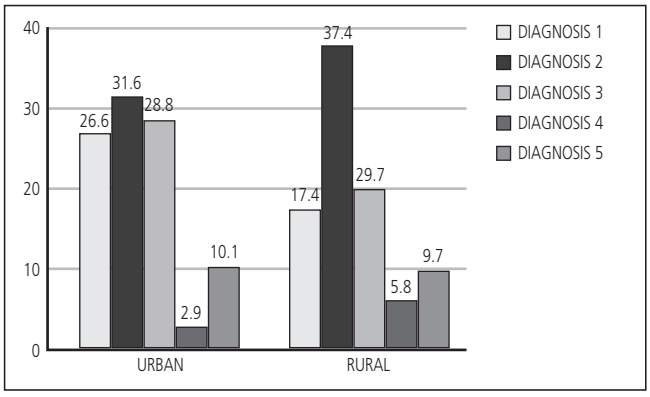

Fig. 2. Diagnosis evaluated in clinical sessions (n = 278 [urban]; n = 155 [rural]) expressed as percentage of total diagnosis (ns). Diagnosis 1: Upper gastrointestinal tract (GIT) diseases. Diagnosis 2: Lower GIT diseases. Diagnosis 3: Liver diseases. Diagnosis 4: Bilio-pancreatic diseases. Diagnosis 5: Others.

setting, though it was only significant in the rural setting (p = 0.002).

1. Joint consultations: The urban center was compared to the rural center according to the distribution of the percentages of diseases divided into five sections corresponding to: 1) Upper gastrointestinal tract diseases; 2) lower gastrointestinal tract diseases; 3) liver disease; 4) biliary tract and pancreatic diseases; and 5) others.

Ninety-nine patients were treated in the urban center, with a total of 112 diagnoses, and 109 patients in the rural center with 124 diagnoses. A predominance of diagnoses of the upper and lower gastrointestinal tract complaints was detected in the rural center. In the urban center, the distribution of these two groups of diagnoses together with liver disease was similar. For the group of other diagnoses, where anemia predominates as the reason for consultation, the urban center had a higher frequency than the rural center. There was significant differences when comparing the distribution between the two centers (p = 0.04) (Table III, Fig. 1).

2. Clinical sessions: The distribution of diagnoses was similar in both centers, without significant differences between them. The numerical data and percentages are given in table III and figure 2. In urban center, 255 clinical cases were discussed, with a total of 278 diagnoses, and in the rural center, 136 and 155, respectively.

Table IV shows the number and percentage of diagnoses belonging to each of the five diagnostic groups, considering jointly patients treated in joint consultations and those assessed in clinical sessions in the urban and rural centers.

As a whole, and considering together both intervention centers, a relative decrease in referrals to first consultation was observed during both subperiods of intervention, as compared with previous control period. By analyzing separately the two centers, the decrease in the number of referrals was non-significant either both subperiods in urban center. In the case of rural center, the reduction in the number of referral was significant only in the first subperiod (50.95 %) (Table V).

Table III. Number of patients and diagnoses treated in joint consultations and evaluated in clinical sessions in urban and rural centers

		Upper GI tract disease	*Lower GI tract disease*	*Liver disease*	*Pancreas and biliary disease*	*Others*	*Total diagnosis*	*Patients*
Urban	J.C.	30	30	30	5	17	112	99
	C.S.	74	88	80	8	28	278	255
Rural	J.C.	41	49	22	3	9	124	109
	C.S.	27	58	46	9	15	155	136

GI: Gastrointestinal. J.C.: Joint consultations. C.S.: Clinical sessions.

Table IV. Description of diagnoses belonging to each of the five diagnostic groups, considering jointly the patients treated in joint consultations and discussed in a clinical session in the urban and rural centers

Diagnostic groups	*Diagnoses*	*Urban*	*Rural*
		n (%)	*n (%)*
1. Upper gastrointestinal tract diseases	Dyspepsia (including problems related to *H. pylori*)	44 (11.3)	38 (13.6)
	GERD	29 (7.4)	14 (5.1)
	Chronic gastritis	16 (4.1)	16 (5.9)
	Dysphagia and esophageal disease in general (non GERD)	15 (3.8)	0 (0)
2. Lower gastrointestinal tract diseases	Surveillance of polyps/colorectal cancer/family history	37 (9.5)	43 (15.4)
	Diarrhea/constipation	33 (8.5)	33 (12.1)
	Nonspecific abdominal pain	18 (4.6)	14 (5.1)
	Inflammatory bowel disease	14 (3.6)	5 (1.8)
	Rectal bleeding	14 (3.6)	6 (2.2)
	Hemorrhoids/anal disease	1 (0.2)	3 (1.1)
	Celiac disease	1 (0.2)	3 (1.1)
3. Liver diseases	Hepatitis serology	42 (10.8)	19 (7.0)
	Hypertransaminasemia	32 (8.2)	27 (10.2)
	Increased SGGT	2 (0.5)	4 (1.5)
	Hyperbilirubinemia/jaundice	7 (1.8)	5 (1.8)
	Ultrasound findings: SOL of liver, hepatomegaly, steatosis	14 (3.6)	8 (2.9)
	High ferritin	6 (1.5)	2 (0.7)
	Cirrhosis	7 (1.8)	3 (1.1)
4. Bile tract and pancreatic diseases	Biliary lithiasis/cholangitis/gallbladder polyps	8 (2.0)	4 (1.5)
	Pancreatic disease	5 (1.3)	8 (2.9)
5. Other diagnoses	Anemia/iron deficiency/macrocytosis/vitamin B12 deficiency	32 (8.2)	14 (5)
	Increased tumor markers	4 (1.0)	2 (0.7)
	Surveillance of bariatric surgery	2 (0.5)	0 (0)
	Constitutional syndrome	5 (1.3)	6 (2.2)
	Peritoneal carcinomatosis	2 (0.5)	0 (0)
	Oral cavity disease	0 (0)	1 (0.4)
Total		390 (100 %)	279 (100 %)

The number and percentage are expressed over total number of diagnosis.

DISCUSSION

Coordination and cooperation between primary care and specialized care is a key topic for continuity of patient care.

In an attempt to improve such coordination, a number of interventions of different types have been carried out: Educational or training, organizational and financial or other forms, which have been analyzed in various studies (15,16).

Table V. Expression of the number of referrals per month, the change (mean absolute and relative change) in referrals to first outpatient consultations of gastroenterology and hepatology, and monthly rate of referral per 10.000 of population adscribed to the health centers

Center	*Control period and subperiods of intervention*	*Number of referrals/month*	*Differences with control n (%) (confidence interval)*	*Referral rate per 10,000 population/month*
Urban	*Control*	*21.06*		*10.99*
	Intervention 1	10.17	10.89 (51.70 %) (-22.51 to 56.94) (p = ns)	5.35
	Intervention 2	7.29	13.77 (65.38 %) (-37.22 to 106.99) (p = ns)	3.95
Rural	*Control*	*10.50*		*9.98*
	Intervention 1	5.15	5.35 (50.95 %) (5.51 to 84.97) (p < 0.05)	4.74
	Intervention 2	6.20	4.34 (40.95 %) (-55.91 to 88.29) (p = ns)	5.79
Global (urban + rural)	*Control*	*15.78*		*10.64*
	Intervention 1	7.66	8.12 (51.45 %) (41.40 to 61.46) (p < 0.05)	7.19
	Intervention 2	6.76	9.02 (57.15 %) (38.99 to 75.31) (p < 0.05)	6.31

Within training interventions, informal learning on clinical cases appears to be more useful than conferences or formal sessions (17).

We carried out an intervention of a mainly training type and of an informal nature, consisting of implementation of joint consultations with primary care of patients from the specialty of gastroenterology, with physical presence of both physicians. This was complemented with clinical sessions of an as well informal nature, responding to the requests of the primary care specialists of the corresponding health centers, both on specific patients and queries on general topics of the specialty, comments on protocols and guidelines for the most common conditions, etc.

The period of intervention carried out by us was 30 months, higher than reported in the literature (18).

The intervention carried out by us was very similar to that conducted in Maastricht (19), referring to the specialty of traumatology and orthopedics, where monthly meetings were held in a group of 4 or 5 general practitioners with consultant physician from specialized care. During these meetings, lasting approximately 1.5 hours, each general practitioner could select one or two patients for a joint consultation, where they were assessed together with the other general practitioners. In our case, in the joint consultations, only the general practitioner of the patient treated was present, although clinical sessions were held with the whole team of physicians of the center. The mean number of patients treated in our joint consultations was similar to that reported in the Dutch study, approximately 5 to 8 per session. In the Dutch intervention, this practice reduced the number of patients referred to specialized care by 50 %.

Regarding the application of joint consultations in the specialty of gastroenterology and hepatology, no studies have been published. There is only a broad study including several specialties (gastroenterology among others) where a joint virtual or teleconsultation type of intervention (18) was made.

Other types of interventions have been reported in the literature regarding gastrointestinal disease, such as distribution of clinical guidelines (20), small discussion groups of general practitioners with a consultant, study by feedback or referral feedback and requests for opinion and discussion with an independent medical doctor (21), with results very discouraging in terms of the changes in referral rate and improvement of appropriateness of referrals.

The reasons for which primary care physicians most often consulted, both at the level of consultation and in the clinical sessions at periodic meetings held in the intervention health centers, were dyspepsia, including problems related to *Helicobacter pylori* infection, in addition to gastroesophageal reflux and topics related to surveillance of colon polyps. These are precisely the topics most discussed in the literature (8-10,22-31) in the context of clinical practice in primary care and its relationship to specialized care in gastroenterology. Also common were consultations on intestinal transit disorders, mainly diarrhea, as well as problems related to interpretation hepatitis virus serologies or monitoring of chronic liver disease of viral etiology and other situations of chronic hypertransaminasemia. There was also special interest for consulting about the workup for anemia of gastrointestinal origin, included in section 5 of "other diagnoses."

We insisted on the need to maintain a relationship with primary care, focusing on teaching interventions mainly

on the topics most consulted by general practitioners. It should be highlighted that in the U.S., other authors (32) reported an inverse relationship between referral rate in general and what they call practice prevalence (frequency of a disease), so that a common condition is treated in primary care without being referred and, on the other hand, uncommon conditions are referred to the specialist consultant. In our case, general practitioners mainly consulted us on routine practical problems of the specialty, which we thus sought were not referred to the hospital outpatient clinics. An example of this is seen in dyspepsia, one of the leading reasons for consultation, with a prevalence in the community reported in the literature of 25-50 %, occupying 5 % of primary care consultations, of which 10 % are referred to the specialist (9), comparable data to the results of our sample.

In some studies (10) a higher rate of referral of patients with dyspepsia is reported when it is associated with symptoms related to irritable bowel syndrome, a finding not detected in patients from our study, where the most common association was with esophageal symptoms, mainly heartburn.

A significant proportion of patients with functional disease were treated effectively in primary care, but if the symptoms become chronic, the probability increases that these patients will be referred. In this regard, factors studied in the literature that may promote chronic gastrointestinal symptoms include the presence of associated psychological factors, interference with normal daily activities and long-lasting episodes (33,34). This may be interesting at the level of primary care to predict the possibility of a referral at any time in the clinical course of the patient.

The studies conducted on functional gastrointestinal diseases with regard to their course and prognosis were mainly conducted in patients referred to the hospital, but, as already stated, most of these conditions are resolved in primary care so the results of these studies cannot be extrapolated to these patients in general (34). We think that this would represent another important reason to establish a close cooperation between the two levels, with the purpose of investigating on these problems so common in clinical practice.

Attempting to establish a comparison between actual joint consultations, such as those conducted by us, with virtual consultations conducted in other studies (18,35), the latter are assessed as positive by patients in terms of convenience, lower cost (avoids traveling), and greater punctuality, though as a negative point they regard the physician-patient relationship as somewhat impersonal and excessively dependent on technology (36). We in this regard consider that the direct and personal relationship formed by the triad of patient-general practitioner-specialist consultant may be more gratifying and therefore more effective, though it is not clear whether it is more efficient. It should also assess this activity within the context of continued training.

In the analysis of the impact of this intervention on referrals to first outpatient consultations of gastroenterology and hepatology, we observed a significant relative decreased in the first subperiod, although without reaching statistical significance during the second, at the global level. In the rural center, there was equally a decrease in both subperiods, but similarly only significant in the first. Nevertheless, in urban center the decrease, although considerable, did not reach significance in any of the two subperiods, which may be due to the great dispersion in the number of referrals among the 15 general physicians, that was from 0 to 27 referrals per month, and also the small number of data, belonging only to one center (for that reason was not possible to study the changes in terms of absolute figures or rate of referrals per population number, although these data are shown in tables I and V). The significance detected in the first subperiod in rural setting may be related to the trend to retain patients in this centers duo to geographical distance (18,19). The absence of significance in relative decrease in the second subperiod in the whole analysis (global or separated by centers) cannot be interpreted as a lost of motivation of primary care, and most probably it is related again with the poor number of data.

We did not carry out satisfaction enquiries, nevertheless the subjective impression was very favorable, and in fact this intervention has been followed after the final of periods of the study by request of the general physician, although with less regularity, in rural center (not in the urban due to changes in health area distribution). In our opinion this kind of interventions may be a method very efficient in relation with continuous formation and teaching, as they are not punctual meeting between primary care and Hospital (such as courses, etc), but a continuous intervention, which create the need for its continuity, from the doctors of both levels (mainly primary care), and from the patients.

In conclusion, the role of the specialist consultant in the health center should be highlighted, both for assessment of patients and for conducting clinical sessions on common diseases in primary care. The usual reasons for consultation were similar in both urban and rural health centers, with a certain predominance of lower gastrointestinal tract diseases. Most of these consultations can be resolved favorably from primary care, with the support of the specialist consultant, and so avoiding unnecessary referrals to first outpatient consultation. Nevertheless our impression is that this kind of intervention should be carry out in a more structured way than we did, by controlling, for example, the filling of referral documents, mainly its appropriateness, in a consensus manner (for instance in the clinical sessions the same day corresponding to the joint consultations), so that it can have more evident and persistent effects.

It would be necessary to carry out additional studies to analyze the impact on patient health, satisfaction, costs to

the healthcare system and other aspects related to communication between the two care levels. The distance between them, as noted by some authors (9), is narrowing in the specialty of gastroenterology, as it probably is in other specialties. Both groups need to continue working together to achieve a fluid relationship between them, which in all likelihood will result in more effective and efficient care of patients.

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