Assessment of the Quality of Colonoscopy in Romania

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Abstract

We performed a national prospective multicentric study in order to assess the quality of colonoscopies performed in Romania. Between the 1st and 30th of November 2004, we performed a questionnaire-type study with regard to the practice of colonoscopy, addressed to all the centers in Romania known to perform digestive endoscopy. Thirty centers responded to our questionnaire, resulting in a number of 2,559 colonoscopies that were performed in Romania during the month of November (a mean of 85 colonoscopies/center/month). The percentage of cecal intubations performed nationwide was 70.5%, 74.1% in university hospitals, as compared to nonuniversity ones (64.6%) (p=0.000027). Regarding sedation during colonoscopy, in 46% of the cases the colonoscopy was performed without sedation and in 54% of the cases with sedation (or sedo-analgesia).

Key words

Colonoscopy - quality - sedation - training - cecal intubation

Rezumat

Acest studiu naţional multicentric prospectiv a dorit să stabilească calitatea colonoscopiei efectuate în Romania. Un chestionar a fost trimis la 37 de Centre de Endoscopie privind practica colonoscopiei în respectivul departament şi a privit prospectiv perioada 1-30 noiembrie 2004. Au răspuns 30 de centre, totalizând 2.559 colonoscopii timp de o lună (în medie 85 colonoscopii/centru/lună). Procentul mediu de colonoscopii totale la nivel naţional a fost de 70,5%, cu diferenţe între spitalele universitare (74,1%) şi cele neuniversitare (64.6%) (p=0,000027). În ceea ce priveşte sedarea la colonoscopie în 46% din cazuri colonoscopia s-a efectuat fără sedare, iar în 54% din cazuri s-a folosit sedarea (sau sedo-analgezia).

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Introduction

To date, colonic cancer is a frequent pathology. In the last few years, the incidence of colonic cancer surpassed that of lung cancer, thus becoming the most frequent type of cancer in Europe. Considering the fact that diagnosing colonic cancer in early stages ensures a good survival rate after 5 years, the screening for colonic cancer has become a real challenge for modern gastroenterology. For the primary prophylaxis of colorectal cancer (diet excluding red meat, rich in fibers and vegetables, rich in calcium etc) decades of effort are needed. The secondary prophylaxis (searching for colonic polyps and polypectomy) seems to be the safest and most efficient method of prevention of colorectal cancer.

The screening for colonic cancer in asymptomatic patients can be addressed to all cases over 50 years old (as in the United States) or only to individuals with moderate or high risk of colonic cancer (as in Romania). It can be performed by means of a Haemocult test (followed by colonoscopy in positive cases), or by sigmoidoscopy, colonoscopy and, recently, by virtual colonoscopy (CT-colonography).

Colonoscopy is considered as the present gold standard for the screening of colonic cancer. Colonoscopy enables a precise diagnosis and also allows for the biopsy of doubtful lesions and polypectomy, when necessary. In order to be efficient, colonoscopy must reach the cecum (to visualise the entire colon, including the ileo-cecal valve) and also all the polyps should be detected (even small ones), so that polypectomy can be performed and the polyps recuperated for examination by a competent pathologist.

Most of the National Societies of Endoscopy analyze the protocol of colonoscopies and of sedation during colonoscopy, as well as the training of future endoscopists. This is the reason for performing a national prospective multicentric study regarding the quantity and quality of colonoscopy in Romania.

Methods

We performed a questionnaire-type study addressed to 37 centers in Romania known to perform digestive endoscopy. Information was requested regarding all colonoscopies performed in those centers between the 1st and the 30th of November 2004.

We asked about the total number of colonoscopies performed during one month, about the mode of preparation for colonoscopy, whether sedation was performed and also about the percentage of total colonoscopies (i.e. cecal intubations) performed (if the colonoscopy was incomplete we asked about the reason why the exploration was stopped).

We compared the outcome of colonoscopy in university and nonuniversity centers.

Results

Of the 37 centers that received our questionnaire we obtained data only from 30 centers in 18 cities, 16 university centers and 14 non-university ones (Fig.1).

The total number of colonoscopies performed in the 30 centers in November 2004 was 2,559 (85 colonoscopies/center/month). Of these, 1,804 were total colonoscopies (70.5%) (Table I). In university centers 1,582 colonoscopies were performed, 1,173 of them total colonoscopies (74.1%); in nonuniversity centers 977 colonoscopies were performed, 631 of them total (64.6%) ($p=0.000027$).

Table I The number of colonoscopies performed in various centers from Romania

Center	University (U)/ Nonuniversity (NU)	Number of colonoscopies	Percentage of total colonoscopies
1	NU	25	52
2	U	85	89.5
3	NU	6	33.3
4	U	195	63.1
5	NU	36	33.3
6	U	88	63.6
7	NU	244	86.5
8	U	212	77.8
9	NU	117	50.4
10	U	57	72
11	NU	92	14
12	U	45	84
13	NU	143	90.2
14	U	29	96.6
15	NU	25	40
16	U	41	82.9
17	NU	22	90.9
18	U	279	66.3
19	NU	55	3
20	U	85	82.3
21	NU	17	11.7
22	U	131	62.6
23	NU	88	90
24	U	106	80.2
25	NU	85	77.6
26	U	91	84.8
27	NU	22	59
28	U	76	80.2
29	U	36	88
30	U	26	76.9

Of all the colonoscopies performed, 18.1% were made by junior endoscopists (experience of less than 3 years) and 81.9% by senior endoscopists.

The main causes for premature termination of colonoscopy (incomplete colonoscopy) were: impossibility of progression 26.9% (?!), malignant stenosis 28.7%, poor bowel preparation 32.5% and other causes 11.9%.

The preparation for colonoscopy was made after ingestion of polyethileneglycol – PEG (Fortrans - Ipsen Beaufour) in 77.8% of the patients; with cleansing enemas in 2.8% of the patients; and in 19.4% of the patients both with PEG and enemas.

Regarding sedation during colonoscopy, in 46% of the cases colonoscopy was performed without sedation and in 54% of the cases with sedation or sedo-analgesia, respectively.

Discussion

In order to compare the quality of colonoscopy in Romania with the quality of colonoscopy in other countries with longstanding medical tradition we used data from two recent studies performed in the United Kingdom and the United States of America. In the United Kingdom, Bowles et al performed a prospective study that included 9,223 colonoscopies performed during 4 months in 213 university and 142 nonuniversity hospitals, respectively (1). The aim of this prospective study was to assess the quality of colonoscopy in various hospitals before the national screening program for colorectal cancer was introduced. In the USA, Cotton et al performed a prospective study regarding the quality of colonoscopy, which included 17,868 colonoscopies performed by 69 endoscopists (2). The study evaluated 7 North-American centers, of which 5 were university centers. The other two centers were also training centers for endoscopists.

In the British study, the percentage of cecal intubation was 76.9%. There were some differences between male (cecal intubation in 80.5% of the cases) and female patients (cecal intubation in 73.4% of the cases). The percentage of total colonoscopies was 76.6% in university hospitals, 74.5% in nonuniversity hospitals and 89.7% in private hospitals. The percentage of total colonoscopies varied depending on who performed the colonoscopy: it was 83.6% if the endoscopy was performed by consultant gastro-enterologists; 80.6% if performed by gastroenterology trainees; 71.5% if performed by coloproctologists; and 69.2% if performed by registrars in surgery.

Fig.1 Cities participating in our study (underlined on the map).

Of the total number of colonoscopies, 94.6% were performed under sedation (most frequently – 57.8% of the cases - with midazolam and pethidine). In 23.1% of the cases the colonoscopy was prematurely terminated due to: patients discomfort (34.7%), uncontrolled looping (29.7%), poor bowel preparation (19.6%), diverticulosis (9.5%).

In another study conducted on 8,902 colonoscopies performed by the British Society of Gastroenterology in order to audit the quality of colonoscopy, the percentage of cecal intubation was 82.9% (3).

In the American study performed by Cotton, the percentage of cecal intubation was 88% (2). In this group unsedated colonoscopy was highly unusual; only 7% of endoscopists performed more than 4% of their procedures unsedated. The outcome of the colonoscopies in Cotton's study is somewhat poorer than the one presented in two other American studies (4, 5), which demonstrated the fact that the percentage of total colonoscopies is higher than 95% if performed by experts (97% in the study performed by Veterans Affairs).

It was demonstrated that wanting to reach the cecum is essential in order to perform a total colonoscopy. When reaching the cecum was considered "essential", the percentage of total colonoscopies was 93%; when it was "desirable" the percentage of total colonoscopies was 86% and when it was "optional" the percentage of total colonoscopies was 45% (6). In another study on how important is to perform a total colonoscopy, it was demonstrated that when it was considered "essential" to reach the cecum, the percentage of total colonoscopies was 89.6% (7).

In an Italian study (8) that compared the effect of sedation during colonoscopy with midazolam vs. midazolam and meperidine, the cecum was reached in 95% of the cases. The study, performed in a single center, demonstrated that by using both midazolam and meperidine for sedation, the pain felt by the patient decreases and the tolerance for the examination increases.

In our study performed in Romania, of the 2,559 colonoscopies evaluated, 1,804 were cecal intubations (70.5%). Comparing the university and nonuniversity centers we fond the following: in university centers 1,582 colonoscopies were performed, 74.1% of them total; in nonuniversity centers 977 colonoscopies were performed, 64.6% of them total ($p=0.000027$). The percentage of total colonoscopies in Romania is slightly inferior to the one in the British study (1), and much lower than in the American study performed by Cotton. Also, in Romania there is a difference of approximately 10% in the percentage of total colonoscopies performed in university vs. nonuniversity hospitals. In the British study, the difference is much lower, approximately 2% (1).

Analyzing the data presented in Table I, one can see that there are some nonuniversity centers in Romania where the percentage of total colonoscopies is unacceptably small, thus rising questions about the quality of training of the endoscopists in those centers. In a recently published editorial by Mulder et al (9), the quality of training for colonoscopy and the number of procedures that must be performed weekly in order to ensure the quality of the investigation is discussed.

But the problem of training physicians for colonoscopy is common also in other countries, like the United Kingdom. In the study of Bowles et al (1), which evaluated the quality of colonoscopies performed in the UK and also whether the recommendation that the first 100 colonoscopies performed by a trainee should be done closely supervised (10) was followed, it was demonstrated that of the 234 colonoscopists evaluated, only 17% were closely supervised

while performing the first 100 colonoscopies. Also, only 39.3% of the colonoscopists attended a formal colonoscopy training course, 51.9% in the case of gastroenterology fellows and 15.8% in the case of registrars in surgery performing colonoscopy.

The reduced percentage of total colonoscopies is not the only consequence of insufficient experience. Another consequence could be lack of detection of polyps during the examination. The percentage of missed polyps larger than 5 mm can reach 20% (11).

Our multicentric study showed that in 46% of the cases colonoscopy was performed without sedation and only in 54% of the cases sedation was used. As shown in a previous article (12), the use of sedo-analgesia during colonoscopy is a major factor contributing to the comfort of both the patient and the examiner. Discomfort during colonoscopy is sometimes responsible for the premature termination of the investigation (34.7% of the cases in the study of Bowles et al) (1). In most studies, the percentage of patients who had sedo-analgesia during colonoscopy was 90-95% (1,2,8). Furthermore, in France colonoscopy is performed usually under general anesthesia (13-15).

Considering all these facts, we believe that Romanian endoscopists should change their attitude toward sedation during colonoscopy in the near future. The majority of colonic examinations should be performed with sedo-analgesia, in order to increase the patients' comfort, but also in order to increase the performances of this investigation in Romania. As almost half of the colonoscopies in Romania (46%) are still performed without sedation, a second examination would be very difficult to perform due to the refusal of the patient. Therefore an efficient screening program for colorectal cancer by means of colonoscopy would be very difficult to implement.

The present study showed that the total number of colonoscopies performed in a month in Romania was 2,559, (about 30,000 colonoscopies/year). This number is close to the one in our previous retrospective study (16), i.e. 22,324 colonoscopies (140 colonoscopies/100,000 inhabitants/year) performed in Romania in 2003. This is totally insufficient for our country. Comparatively, the number of colonoscopies performed/100,000/year was 4,950 in the USA, 1,500 in France and 800-1000 in the UK (17-20).

In order to significantly increase the number of colonoscopies, by the year 2015, to 300,000 colonoscopies each year, Mulder et al suggest that by then Romania should have at least 400-450 trained endoscopists (9). This goal could be achieved with an annual inflow of 30-40 trainees capable of performing colonoscopies. During the last three years of the residency, the trainee should perform 500 colonosco-pies. Other authors consider that the fellow should perform a minimum of 200 colonoscopies during the training program in order to aquire a correct diagnostic procedure (21).

The European Diploma of Gastroenterology (22, 23) stipulates that a trainee must perform a minimum of 100 total colonoscopies and 50 polypectomies during the residency in order to receive the Diploma of Recognition of Quality of Training in Gastroenterology.

In order to train such a high number of residents, a sufficient number of endoscopes are needed, as well as an adequate number of trainers. The trainee should spend sufficient time in the department of endoscopy (at least 12 hours/week) during the last three years of residency (9).

In conclusion, this multicentric study confirms the results of previous studies, which proved that the number of colonoscopies performed in Romania is totally insufficient and also that the percentage of cecal intubation is only 70.5%. The percentage of cecal intubation is higher in university hospitals as compared to nonuniversity ones. Sedation during colonoscopy is not used often enough in Romania.

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