



Yield of endoscopy of the lower digestive tract in relation to ethnic descent

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Contributions: (I) Conception and design: RJ Loffeld; (II) Administrative support: RJ Loffeld; (III) Provision of study materials or patients: All authors; (IV) Collection and assembly of data: All authors; (V) Data analysis and interpretation: RJ Loffeld; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

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Background: Not much is known of the yield of endoscopy in relation to ethnic descent. The aim is to study endoscopy of the lower digestive tract in relation to the ethnicity.

Methods: A prospectively collected dataset was used. Presence four endoscopic findings (diverticuli, polyps, colorectal cancer, and signs of inflammation) was studied. The patients were divided in four groups. Group 1 patients of Western descent, group 2 patients of Turkish descent, group 3 patients originating from Morocco, Northern Africa and the Middle East, and, group 4 patients of Asian descent.

Results: In group 1, 35,340 procedures were done in 24,223 patients, in group 2 this was 1,776 in 1,338 patients respectively. In groups 3 and 4 this was 465 in 371 patients, and 416 in 305 patients. There was no difference in gender between the four groups, the number of women undergoing endoscopy was higher in all groups. Overall abnormalities in colon and rectum were significantly more often seen in group 1. Colorectal cancer was significantly less often diagnosed in patients of groups 3 and 4. Polyp(s) were significantly less often seen in patients of groups 2 and 3. While diverticulosis of the colon was significantly more often diagnosed in patients of group 1. Signs of inflammation in colon and/or rectum were significantly more often seen in patients of groups 2, 3, and 4.

Conclusions: There are clear differences in presence of colorectal abnormalities in patients from different ethnic descent. The implication of this finding in daily practice is not obvious.

Keywords: Colonoscopy; colorectal cancer; polyp(s); ethnicity; yield

Submitted Jan 25, 2019. Accepted for publication Feb 14, 2019.

doi: 10.21037/jgo.2019.02.05

View this article at: <http://dx.doi.org/10.21037/jgo.2019.02.05>

Introduction

Endoscopy of the lower digestive tract is used on a regular routine basis in patients with different indications. Mostly the procedure is done because of abdominal complaints, anemia of unknown origin, rectal bleeding, but also in cases of family history of colorectal cancer or screening. In cases of proper preparation an adequate inspection of colon and rectum is possible. In many countries a program has been developed for screening and detection of colorectal cancer and advanced adenomas.

The general yield of the procedure is high (1). However, not much is known of the yield of endoscopy in relation to ethnic descent of the patient.

For this reason, a large prospectively collected dataset was used in order to search for the yield of endoscopy of the lower digestive tract in relation to the ethnicity.

Methods

A prospectively collected dataset of lower gastrointestinal endoscopy covering more than 25 years was used. All

Table 1 The endoscopic procedure in each of the identified groups of patients

	Group 1	Group 2	Group 3	Group 4
Colonoscopy	32,963	1,688	440	383
Sigmoidoscopy	2,377	88	25	33

P=0.01.

Table 2 Gender in the four groups of patients

	Group 1	Group 2	Group 3	Group 4
Male	10,476	599	171	139
Female	13,747	739	200	166

P=ns.

Table 3 The general yield of endoscopy in each group of patients

	Group 1	Group 2	Group 3	Group 4
Abnormalities	21,798	531	142	146
No abnormalities	2,425	807	229	159

P<0.0001.

endoscopies were done in the Zaans Medical Center, the community hospital of the Zaanstreek region in The Netherlands.

In this period of time, many patients underwent more than one procedure, mostly because of follow-up after polypectomy or colorectal surgery, but also because of new complaints leading to a new endoscopy. For the sake of the study only the four most important endoscopic findings were included. These were diverticuli, polyps (regardless of the number, size or histological examination), colorectal cancer, and signs of inflammation (inflammatory bowel disease, diverticulitis or aspecific colitis or proctitis).

If a procedure revealed an endoscopic obstructive cancer in rectum or sigmoid while during an appropriate follow-up endoscopy after surgery diverticuli or polyp(s) were also noted, then these were added in the list of diagnoses of this patient. Patients can also develop new abnormalities in colon or rectum (2). If during a new endoscopic procedure, for whatever reason, one of the four major findings was seen, this finding was also added cumulatively in the abnormalities detected in the specific patient. Of course many patients can have more than one of the major findings present.

In the Zaanstreek region the majority of inhabitants are authentic Dutch or of Western descent. In addition, there are many people originate from different countries. There is a large population of Turkish descent, first, but also second, third and even fourth generation. In addition, people from Morocco, but also a small number of refugees from the middle east live in the Zaanstreek region. Also people from Asian descent (mostly Indonesia and Hong Kong) form a significant population.

In The Netherlands the descent or place of birth of every person is registered. These data are incorporated in the hospital registration system and retrieved if necessary. In addition, people of a specific ethnicity born in The Netherlands were identified by their name.

To the best of our knowledge the patients were divided in four groups. Group 1 all patients of Western descent, including Italian and Spanish people but also patients originating from Eastern Europe. Group 2 patients of Turkish descent, group 3 patients originating from Morocco, Northern Africa and the Middle East. And, finally group 4 patients of Asian descent.

Statistical analysis was done with Chi-square test for contingency tables. A P value below 0.05 was considered significant.

Results

In group 1, 35,340 procedures were done in 24,223 patients, in group 2 this was 1,776 in 1,338 patients respectively. In groups 3 and 4 this was 465 in 371 patients, and 416 in 305 patients. The mean number of procedures per patient per group was 1.45, 1.32, 1.25, and 1.36 respectively.

Table 1 shows the colonoscopies and sigmoidoscopies in the four groups of patients. Patients from Asian descent had undergone slightly more often a sigmoidoscopy. There was no difference in gender between the four groups (*Table 2*). Although the number of women undergoing endoscopy was higher in all groups.

Overall abnormalities in colon and rectum were significantly more often seen in group 1, the patients of Western descent (*Table 3*). Colorectal cancer was significantly less often diagnosed in patients of groups 3 and 4 (*Table 4*). Polyp(s) were significantly less often seen in patients of groups 2 and 3 (*Table 5*). While diverticulosis of the colon was significantly more often diagnosed in patients of group 1 (*Table 6*). Signs of inflammation in colon and/or rectum were significantly more often seen in patients of groups 2, 3, and 4 (*Table 7*).

Table 4 Presence of colorectal cancer in the four groups of patients

	Group 1	Group 2	Group 3	Group 4
CRC+	1,017	28	7	14
CRC-	23,206	1,310	364	291

P<0.001. CRC, colorectal cancer.

Table 5 Presence of polyp(s) in patients of the four groups

	Group 1	Group 2	Group 3	Group 4
Polyp(s)+	3,628	158	44	45
Polyp(s)-	20,595	1,180	327	260

P<0.0001.

Table 6 Presence of diverticuli in patients of the four groups.

	Group 1	Group 2	Group 3	Group 4
Diverticuli+	3,879	98	127	35
Diverticuli-	20,344	1,240	244	270

P<0.0001.

Table 7 Presence of inflammation in colon and rectum (Crohn's disease, ulcerative colitis, infectious colitis, aspecific colitis, diverticulitis)

	Group 1	Group 2	Group 3	Group 4
Inflammation+	1,108	97	38	25
Inflammation-	23,115	1,241	333	280

P<0.0001.

Discussion

Despite the fact that colonoscopy is applied frequently in many countries as diagnostic and therapeutic instrument, little is known about the yield in different races or ethnicities of the patients studied. The present study reports the yield related to ethnicity or descent of the patients. A possible flaw is that in group 1 possibly patients are incorporated who are immigrants from Suriname. Unfortunately, these people usually have names that are clearly Dutch, hence identification of these patients in the large dataset is almost impossible. On the other hand, a very small population of people from African descent live in the Zaanstreek region. These patients were also incorporated in group 1. From daily experience it is known that the number of patients from Suriname or African descent is

very low, hence, these patients will have little influence on the outcome of the study.

The results of the present study clearly show difference with respect to presence of the four major abnormalities [diverticuli, polyp(s), inflammation, and colorectal cancer] in colon and rectum.

Differences in colorectal cancer incidence have been reported between different ethnic and even racial groups in the United States of America. For instance, African Americans have a higher mortality risk compared with Caucasian Americans (3,4). Data from SEER also show that there is no difference in CRC incidence in Hispanics compared with non-Hispanics (5).

A higher rate of colorectal cancer was seen in Japanese Americans when compared with other Asian population living in California (6).

In an earlier study done in the Zaanstreek region it was already shown that colorectal cancer is rarely diagnosed in patients of Turkish descent. The present study confirms these earlier findings (7).

Diverticulosis of the colon is significantly more often seen in patients of Western descent. The reason for this difference is not obvious. But given the fact that the Western diet is possibly responsible for the development of diverticuli, it could be assumed that patients in the other three groups have a different diet possibly protecting them against this development. Of course, this is an assumption. Studies on the different diets are almost impossible to implement. In a previous study in a much smaller group of patients it was already described that diverticulosis is a rare entity in immigrants. It was also shown that there was no selection bias with respect to the performance of endoscopy in these immigrants (8).

Data on presence of polyps in various ethnic populations are mixed. African Americans are more likely to have larger polyps compared to Caucasian Americans (9).

In the present study polyp(s) were less often seen in patients from Turkish, Middle East, and Morocco. The reason for this lower incidence is not known. Possibly that the traditional diet in these countries of origin offers protection against development of adenomas and even colorectal cancer. It would be very interesting to study these groups of people in the future when future generations adapt more to the Western type of diet.

A possible flaw of the present study is that age was not calculated for every patient. On the other hand, this was not possible. All endoscopic diagnoses were cumulated. In a single patient it could be possible that during the first

endoscopy only diverticuli were seen while during a next endoscopy (many years later) polyp(s) were diagnosed. What age of the patient should than be noted?

Another possible point of criticism could be that medical care, and hence endoscopy is not easily available for immigrants. Cultural or socioeconomic barriers in seeking medical help are assumed to be present in many countries. Fortunately, this is not the case in The Netherlands. The health system is accessible for every inhabitant. Medical insurance is mandatory, even for refugees from the middle east or other war zones.

It can be concluded that there are clear differences in the incidence of abnormalities in colon and rectum if the descent of the patient is taken into account. The implication could be that the procedure could be omitted in specific patients if there are no direct or indirect signs leading to a higher index of suspicion of abnormalities in colon or rectum.

Acknowledgments

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: Ethical approval is not required in The Netherlands for this kind of studies.

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Cite this article as: Loffeld RJ, Liberov B, Dekkers PE. Yield of endoscopy of the lower digestive tract in relation to ethnic descent. *J Gastrointest Oncol* 2019;10(4):641-644. doi: 10.21037/jgo.2019.02.05