Colonoscopy in elderly: feasibility, tolerance and indications: about 901 cases

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La coloscopie chez le sujet âgé : faisabilité, tolérance et indications : à propos de 901 cas

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RÉSUMÉ

Prérequis : La coloscopie est l'examen de référence pour l'exploration des pathologies coliques. Cependant les cliniciens demeurent hésitants face à sa prescription chez les sujets âgés devant un plus haut risque et un taux élevé d'interruption de cet examen.
Buts : Évaluer la faisabilité et la tolérance de cet examen chez le sujet âgé et mettre en revue les indications les plus fréquentes de la coloscopie chez ces patients.
Méthodes : Etude pilote rétrospective incluant 901 patients de Janvier 2004 à Décembre 2009, répartis en deux groupes. Groupe (I) incluant les patients âgés de 75 ans et plus, groupe (II) incluant ceux âgés de 45 ans ou moins. Tous ces patients ont eu une coloscopie au service de gastroentérologie de l'Hôpital Charles Nicole.
Résultats : Le 1er groupe incluait 231 patients et le 2ème groupe incluait 670 patients. Un antécédent de cancer colorectal était plus fréquent dans le groupe I (33,3% versus 9,90%; p<0,05), alors que celui de maladies inflammatoires chroniques de l'intestin était plus fréquent dans le groupe II (0 versus 40,6%; p<0,05). La principale indication de la coloscopie était la constipation dans le groupe II (6,1% versus 27%; p<0,05) et la diarrhée chronique dans le groupe I (42,9% versus 16,4%; p<0,05). La préparation était jugée mauvaise dans 30,4% des cas du groupe I et 12,9% du groupe II (p<0,05). La tolérance était similaire dans les deux groupes. Le taux de coloscopie incomplète était plus élevé dans le groupe I (38,3% versus 23,4%; p<0,05). Les causes les plus fréquentes de l'arrêt de l'examen étaient la mauvaise préparation pour le groupe I, la mauvaise tolérance dans le groupe II. La pathologie diverticulaire, les polypes et les cancers colorectaux prédominaient dans le groupe I, les maladies inflammatoires chroniques intestinales dans le groupe II.
Conclusion : Chez le sujet âgé, la coloscopie est un geste sûr, bien toléré qui a un bon rendement diagnostique. Le taux important de coloscopies incomplètes est lié à la mauvaise préparation. La sédation ne parait pas indispensable. Une amélioration de la qualité de la préparation permettra de mieux optimiser ce geste.

Mots-clés

Coloscopie, sujet âgé, tumeurs colorectales

SUMMARY

Background: Colonoscopy is the standard investigation for colonic disease, but clinicians often are reluctant to refer elderly patients for colonoscopy because of a perception of higher risk and a high rate of incomplete examinations.
Aims: To evaluate feasibility and tolerance of this investigation in elderly and to review the most frequent indications of colonoscopy in these patients.
Methods: A pilot retrospective study including 901 patients from January 2005 to December 2009; divided into two groups. Group (I) included patients 75 years old and more, group (II) included patients 45 years old or less. All those patients underwent colonoscopy at the gastroenterology department of Charles Nicole hospital.
Results: The 1st group included 231 patients, and the 2nd group included 670 one. A past history of colorectal cancer was more frequent in the group I (33.3% versus 9.90%; p<0.05) however history of chronic inflammatory bowel disease was more frequent in group II (0 versus 40.6%; p<0.05). The main indication of colonoscopy was constipation in group II (6.1% versus 27%; p<0.05) and chronic diarrhoea in group I (42.9% versus 16.4%; p<0.05). Bowel preparation was poor in 30.4% cases of the group I and 12.9% of group II (p<0.05). The tolerance was similar in the two groups. The incomplete colonoscopy rate was higher in the group I (38.3% versus 23.4%; p<0.05). The most frequent cause of colonoscopy interruption was the poor preparation in group I and the bad tolerance in group II. Diverticular disease, polyps and colorectal cancers prevailed in group I, whereas inflammatory bowel disease was current in group II.
Conclusion: In elderly patients, colonoscopy is safe, well tolerated and offers a good diagnostic yield. Its non completion was essentially due to the poor preparation. Sedation did not seem essential. The optimisation of results of colonoscopy requires an improvement of quality preparation.

Key-words

Colonoscopy, elderly, Colorectal Tumor

Modification of demographic characteristics of population within last decades and progress in Gastro-Intestinal endoscopic exploration are at the origin of a growing need to endoscopic examination in elderly. Colonoscopy for colon exploration was firstly introduced in our country in 1976. However a research until March 2010 from famous medical sites: Pubmed, Hinari, Elsevier, Cochrane library and Tunisian Journals doesn't found any Tunisian data concerning the yield and the tolerance of colonoscopy in elderly.

The aim of our study is to evaluate feasibility, tolerance and diagnostic yield of colonoscopy in patients aged 75 years or more followed in the department of Gastroenterology of Charles Nicole Hospital in Tunisia.

PATIENTS AND METHODS

We retrospectively analysed the reports of 901 patients that underwent colonoscopy from January 2005 - December 2009 in the department of Gastroenterology of Charles Nicolle Hospital from Tunisia. We subdivided our patients into two groups: the 1st including patients aged 75 years or more; the 2nd including patients aged 45 years or less.

Parameters evaluated included: demographic data, medical past and family history, colonoscopy indication, quality of bowel preparation, colonoscopy completion, use of sedation, tolerance and cause of interruption of colonoscopy, results and complications of this exam.

Commonly used bowel preparation regimens include oral electrolyte lavage solutions (ELS) containing polyethylene glycol (PEG): 4 litres administrated in 2 times: 2 litres the evening of examination and 2 litres the same day. A remnant free diet during 3 days before colonoscopy was recommended and explained to patients. Two video-colonoscopes were used "Fujinon 100 FP" and "Olympus Q260DL". Hypnovel was used for sedation by titration in stages of 2.5 milligrams.

Microsoft Excel office 2000 was used for data entry and SPSS 11.5 for statistical analyses carried on in the department of epidemiology in faculty of medicine of Tunisia. Simple and relative frequencies were calculated for qualitative variables and means. Comparison of percentage was realised by Pearson Chi two tests, otherwise by Fisher exact test. In all cases, threshold signification was fixed at 0.05.

RESULTS

901 patients were included and divided into 2 groups:

- 1st group (Age ≥ 75 years): 231 patients with a mean age of 73.79 (range 75–103) years
- 2nd group (Age ≤ 45 years): 670 patients with mean age 33.42 (range 8–45) years

Men represented 59.7% (n = 138) of the 1st group and 49.7% (n = 330) (p=0.008). 559 colonoscopy requests originated from our service and the 342 remaining from other services.

a. Family and past history were mentioned only in 128 patients. Past history of colorectal cancer were significantly higher in elderly (33.3% Vs 9.9% p<0.005). However, young patients have more frequent association with past history of IBD (40.6% Vs 0% p<0.05).

b. Indications of colonoscopy:

The indications for colonoscopy in the two groups are listed in Table 1. The commonest one in both groups was change in bowel habits. Then, constipation was the principle indication for endoscopic exam in 27.7% of patients of the 1st group comparatively to 6.1% of patients of the 2nd group (p<0.05). However, in group 2, they were dominated by chronic diarrhoea (42.9% Vs 16.4%; p<0.05). Some patients had multiple indications.

Table 1 : Indications of colonoscopy

Indication of colonoscopy	Group1 N=231	Group2 N=670	p
Chronic diarrhoea	38 (16.4%)	288 (42.9%)	<10-3
Constipation	64 (27.7%)	41 (6.1%)	<10-3
Abdominal pain	32 (13.8%)	59 (8.8%)	<10-3
Rectal bleeding	36 (15.5%)	94 (14%)	0,651
Alternation diarrhoea/constipation	12 (5.19%)	19 (2.8%)	0,129
Anaemia	10 (4.3%)	29 (4.32%)	0,861
Weight loss	11 (4.76%)	7 (1.04%)	0,001
Occlusive syndrome	13 (5.62%)	53 (7.9%)	0,316
Colorectal cancer screening	0	4 (0.59%)	0,553
Search for polyps	1 (0.43%)	9 (1.34%)	0,438
IBD evaluation	3 (1.29%)	10 (1.49%)	0,920
Melena	13 (5.62%)	6 (0.89%)	<10-3
Postoperative evaluation	7 (3.03%)	13 (1.94%)	0,332
Search for primary tumour	2 (0.86%)	6 (0.89%)	0,715

c. Quality of bowel preparation:

The quality of the bowel preparation was mentioned on the report of the colonoscopy among 893 patients (99.11%). It was considered as poor in 30.4% of elderly comparing to 12.9% in younger (p<0.05). It was no significant statistical relation according to the sex (Table 2).

Table 2 : Evaluation of quality of preparation according to the sex in both groups

	Bowel preparation	Women (N=426)	Men (N=467)	P
Group 1	Good	30 (32,6%)	39 (28,9%)	0,54
	Poor	62 (67,4%)	96 (71,1%)	0,54
Group 2	Good	148 (44,3%)	131 (39,5%)	0,204
	Poor	186 (55,7%)	201 (60,5%)	0,204

d. Sedation:

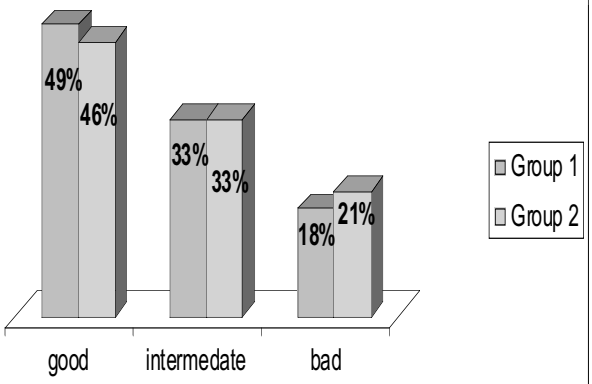
It was realised in 11 patients of the 2nd group.

e. Tolerance of colonoscopy:

The tolerance of the colonoscopy was mentioned in 882 patients (97.89%). It was similar in the two groups (Figure 1). In the group of the old subjects the tolerance was considered to

be good in 37.1% of women and 57.5% of men (p<0.05). In the younger group, tolerance was considered to be good in 43.8% of women and 50% of men (p>0.05).

Figure 1 : Evaluation of tolerance in both groups



f. Colonoscopy completion:

It was mentioned only on 898 of reports. 244 patients had an incomplete colonoscopy (27.7%). The incomplete colonoscopies were significantly higher in the group I (38.3% Vs 23.4%; p<0.05). There were no significant differences according to sex between older and younger group concerning the colonoscopy completion.

g. Causes of colonoscopy discontinuation:

They were mentioned in 76 (19.5%) reports. The commonest reason for incomplete examination was poor bowel preparation in elderly comparing to the bad tolerance in younger.

h. Colonoscopy results:

The main diagnoses in the two groups are listed in Table 4.

Table 3 : Results of colonoscopy

Colonoscopy results	Group I N=203	Group II N=556	p
Normal	74 (36,4%)	342 (61,5%)	$<10^{-3}$
Colic diverticulosis	36 (17,7%)	9 (1,6%)	$<10^{-3}$
Colic polyps	52 (25,6%)	27 (4,85%)	$<10^{-3}$
Colorectal Cancers	26 (12,8%)	18 (3,2%)	$<10^{-3}$
Inflammtory bowel disease	6 (2,95%)	143 (25,7%)	$<10^{-3}$
Colic Angiodysplasia	5 (2,46%)	1 (0,18%)	0,007
Diverticular sigmoïditis	1 (0,49%)	1 (0,18%)	0,5
Infectious colitis	0	3 (0,54%)	0,692
Ischemic colitis	1 (0,49%)	0	0,256
Tuberculosis	0	3 (0,54%)	0,692

Colonoscopies were normal at 36.4% in elderly comparatively to 61.5% in younger (p<0.05). Diverticular pathology largely prevail in the 2nd group (17.7%) comparatively with the 1st group 1.6% (p<0.05). Colonic polyps and colorectal cancers were found in respectively 25.6% and 12.8% of cases in group I. Inflammatory bowel disease (IBD) were significantly more frequent in younger group (25,7% versus 2,95%; p<0,05).

i. Colonoscopy complications:

In our study only one patient presented a complication. It was a 28 years old patient who had presented a vagal faintness during the examination. No complication was noted in the group of the old subjects.

DISCUSSION

Since the proportion of the population that is considered "elderly" continues to increase; an increasing importance of safe and effective diagnostic and therapeutic modalities for this age group must be well developed to explore pathologies considered as the commonest in such a population: colorectal cancer, diverticular pathology… Elderly patients are consequently the ones most likely to require a diagnostic evaluation of their colon and, simultaneously, appear to have the highest risk of morbidity to the diagnostic exam.

The commonest indications for colonoscopy in elderly, reported in the literature, were anaemia (30.8 to 55%), disorders of bowel habits (3.8% to 14%), rectal bleeding (6% to 41.5%), melena (5%), abdominal pain (4% to 11%), diarrhoea (16 to 19%), constipation (4.1%), weight loss (3 to 4.1%), past history of colorectal cancer or polyps (1 to 29.6%), colorectal cancer screening (7% to 15%) and an abnormal barium enema (1,3% to 4%) [1] .

In our series, the constipation was the principal indication in the group II (6.1% versus 27%; p<0.05) and chronic diarrhoea in the group I (42.9% versus 16.4%; p<0.05), glairo-bloody emissions were more frequent in the 2nd group (1.73% versus 10.3%; p<0.05), melena in the 1st group (5.62% versus 0.89%; p<0.05). No old patient had colonoscopy for colorectal cancer screening.

In the literature, the opinions are controversial concerning the interest to practice an endoscopy for colorectal cancer screening in patients aged more than 75 years usually having multiple concurrent illnesses and a poor life expectancy. Some are for the colonoscopy of tracking at the old subject after evaluation of the ratio risk/benefit [2]. Others are for tracking of symptomatic old patients [3], and others think that colorectal cancer screening should not exclude the asymptomatic old subjects [4].

Elderly patients were, however, significantly less likely to have their colonoscopy completed than younger patients. Failure can be dependant on various factors, mainly the advanced age. Complete colonoscopy rate ranges from 56% to 94% in elderly patients [5, 6].

In comparative studies, the rate of complete colonoscopy in elderly was lower comparing to younger adults (78% versus 93%; p<0.05) [7, 8] (81.1% versus 86.5%; p<0.05). An English study on 9223 colonoscopies [9] deduced an inverse relation between the rate of caecal attemption and the age of the patient. The advanced age is regarded as a predictive factor of technical difficulties relating to a reduction in the elasticity of tissues on the one hand and to dolichocolon on the other hand, facilitating the formation of loop [10]. Other causes of completion colonoscopy failure are: poor quality of the preparation [7, 11,

12, 13], a bad tolerance [7] ; technical difficulties [14], colic obstruction [15], diverticular pathology [7, 13], female sex [14], past history of constipation [14].

In our series, the rate of complete colonoscopies was lower in elderly subjects (61.7% versus 76.6%; p<0.05). Causes of incomplete examination in this group were essentially, colic diverticulosis and bad preparation. Contrary to the literature we did not found any significant statistical difference between the two groups according to the sex.

Several studies showed that the quality of bowel preparation was often bad in elderly comparing to young patients (16% versus 4%) [5], (17% versus 1%) [7] , (8.6% versus 4.5%) [16]. Male sex was also correlated to poor bowel preparation, polypectomy [17], chronic constipation, obesity [18], late schedule of the colonoscopy (after midday) [19], hospitalized patient, bad observance of the instructions of the preparation [17]. In our series two factors were analyzed: age and sex. Our results are in agreement with the data of the literature with regard to the more important rate of bad preparations in elderly comparing to younger (respectively 30.7% versus 12.9%; p<0.05). On the other hand we did not found any statistically significant differences between sexes in the two groups such as reported in the literature. For the other predictive factors of poor quality of preparation, they could not be studied because of the lack of data.

Bad tolerance of colonoscopy was the other cause of failure of the completion of examination [20]. In a comparative study considering 17926 colonoscopies, bad tolerance was a cause of stopping of the procedure at 1.9% in patients aged more than 75 years comparing with 3% in younger (p<0.05) [16].

Several factors had an impact on the tolerance. In elderly, tolerance is better than in younger adult, probably due to a reduction in pain perception threshold [10, 21]. Besides, female sex is a predictive factor of bad tolerance of colonoscopy. It is explained by a longer colon easily forming loops, a lower pain threshold, and history of pelvic surgery [10, 22, 23, 24]. Technical difficulties (invincible loops) [25], poor bowel preparation, a body-mass-index lower or equal to 25 [26] and lack of experience of the operator can be associated with a bad tolerance [27].

In our series, we didn't found any statistical differences between the two groups, but we noticed a better tolerance in men (Group1) (p<0.05). According to the literature the bad tolerance of colonoscopy among old women seems related to a heavy past obstetrical history that was unfortunately not found in our study.

Some specialists choose to practice colonoscopy after vigil sedation or general anesthesia in order to improve the tolerance of the exam and the rate of colonoscopy completion [28]. Others think that neither vigil sedation nor general anaesthesia is necessary, since the procedure is often well tolerated and didn't cause more discomfort than barium enema. Sedation must be reserved to anxious patients or those having anatomical difficulties [27].

In our study, no patient of group I received any sedation, and only 11 (1.6%) of group II were sedated.

Although colonoscopy is the "gold" standard for colic exploration, it remains an invasive procedure which can expose the patient to serious complications and even to the death. In our study no complication was observed in group I. In group II, a vagal faintness was observed in only one patient (colonoscopy being without sedation, with a good preparation, it was stopped because of the agitation of the patient).

In comparative studies, abnormal colonoscopy rate was higher in elderly with a more important incidence for diverticular pathology, colorectal cancers, polyps and angiodysplasia [7].In younger patients the IBD were more frequent [29].

In our series, the output diagnoses was higher in group I, indeed normal colonoscopy rate was (36,4% versus 61,5%; p<0,05), diverticular pathology, colorectal cancers, polyps and colic angiodysplasia had an increasing incidence in elderly, their rates in our study were respectively: (17.7% versus 1.6%; p<0.05), (25.6% versus 4.85%; p<0.05), (12.8% versus 3.2%; p<0.05), (2.46% versus 0.18%; p<0.05). In younger patients, IBD were significantly more frequent (25.7% versus 2.95%; p<005).

CONCLUSION

Colonoscopy is a useful tool for colon exploration. Its utilisation in elderly arises challenges between specialists. In spite of the lack of data, explained by the retrospective character of our study, the colonoscopy in older subjects appears to be a sure exploration, of a high diagnostic yield, well tolerated, which failure is related to poor bowel preparation. Sedation would not be essential on this ground, but an improvement of the quality of the preparation would contribute to better conditions for success of the colonoscopy in elderly.

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