



Endoscopic Treatment of Patients with Upper Gastrointestinal Bleeding in a Tertiary Care Center

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Abstract

The knowledge of the main causes of gastrointestinal bleeding, makes it possible to make rational organizational and therapeutic measures.

Method: We performed a descriptive study in 428 endoscopies protocols, to present a clinical suspicion of upper gastrointestinal bleeding, from 1 January 2016 until December 30, 2017 in CNCMA, in order to determine the behavior and the most frequent causes of upper gastrointestinal bleeding. The sample consisted of 245 women and 183 men. Descriptive statistical analysis was performed by absolute frequencies and percentages for using the computer program EndoSorex.

Results: The most common age group was found more than 60 years (58, 6%). The male (54, 2%), hematemesis (29, 4%) and anemia (16, 4%) were the main indications for endoscopy. Hemorrhagic gastritis (31, 8%) and gastroduodenal peptic ulcer with signs of bleeding (20, 1%) were the most frequent findings. Injection therapy with epinephrine was the most used (59, 8%). There were no complications in our series.

Conclusion: We conclude that gastrointestinal bleeding occurred more frequently in patients older than 60 years, female, the most frequent cause's hemorrhagic gastritis, and gastroduodenal peptic ulcer with signs of bleeding.

Keywords: Gastrointestinal Bleeding; Endoscopy; Endoscopic Therapy; Hematemesis

Introduction

Upper gastrointestinal hemorrhage is a frequent entity, the main reason for indication of emergency endoscopy. Despite the abundant information accumulated in recent years about its prognosis and treatment, there is still considerable heterogeneity in the management of patients, which can lead to different clinical outcomes, depending on how and where it is performed [1-6]. In this sense, a study carried out in different university hospitals [1] shows the different management of upper gastrointestinal bleeding, depending on the patient's admission service (gastroenterology, surgery or internal medicine). Although there were no significant differences in mortality, the average stay and the cost of hospitalization were significantly lower in patients admitted to gastroenterology services than in those of surgery or internal medicine.

In our country, despite the existence of standards of medicine and surgery, which point out the main aspects in the management of this disease in general hospitals, we are not exempt from this problem. [7-14] in our institution it has been reported that this condition It has a high incidence and causes a significant consumption of resources [8].

Currently in the Endoscopic Surgery Center there are competent medical staff and resources for the management of upper gastrointestinal bleeding, which allows us to highlight the need to know these factors, so as to homogenize the behavior, improve the quality of care and optimize the use of health resources. For that reason we decide to carrying out the following investigation, with the objective of determining the behavior of the upper digestive hemorrhage, as a reason for consultation of the patients, for

diagnosis and treatment in the National Center of Minimum Access Surgery, during January of the 2016 to December 2017.

Methods

A descriptive, retrospective study of 3622 protocols of patients who attended the Endoscopy Service and the Intermediate Care and Digestive Bleeding Unit of the National Center of Minimum Access Surgery (NCMAS), to receive endoscopic evaluation and treatment, was carried out during the period comprised from January 1, 2016 to December 30, 2017, from different health institutions (Hospitals and Polyclinics) in Havana, with the aim of determining the behavior and the most frequent causes of upper gastrointestinal bleeding. It motivated the patients attention.

It was taken as inclusion criterion; the protocols with clinical and endoscopic evidence of upper digestive bleeding and received or not endoscopic treatment, the sample was constituted by 428 patients. The patients not complied with this requirement were excluded. The variables to study were; Age with intervals groups of 10 years from less than 20 years old to more than 80 years, sex, indications of the procedure, diagnosis and endoscopic therapy performed, effectiveness of the treatment, given by the presence or absence of complications, as established by the World Association of Digestive Endoscopy (Policy and Procedure Manual for Gastrointestinal Endoscopy Guidelines for Training and Practice, ASGE, ACG 2000 available online, <http://www.asge.org>).

For the information processing and statistical analysis, the computerized program created in the National Center for Minimum Access Surgery (EndoSorex Software, Endoscopic Management System version 1.0 CENDA 2009. Registry 2755-2009) was used, in which the results through absolute frequencies, relative and percentages, represented in tables and graphs for better compression and presentation.

Results

We reviewed a total of 3622 endoscopy protocols belonging to the same number of patients who attended in our Center, to perform endoscopies of upper digestive tract, of which 428 (11%) were due to clinical suspicion of upper digestive bleeding, due to the presence of melena, persistent anemia of not well defined cause or hematemesis.

Regarding the distribution of patients, taking into account the causes of indication of endoscopies and sex, it was found that female sex predominated; 245 patients (57.2%), both in the group of patients who presented with hair, and in those who presented anemia and hematemesis (Table 1). Regarding to the distribution by age groups in our study, we can observe that the age group of 60 years and older was the one that had a greater representation; 235 patients (54.9%), in the three reasons for endoscopy indica-

tion in our series (table 2). The endoscopic findings found during the procedure are shown in Table 3, which shows that hemorrhagic gastritis was observed in the largest number of patients (136 for 31.8%), followed by gastric and duodenal peptic ulcer. in the same amount of patients (86 each, representing 20.1%).

Reasons	Female		Male		Total
	No.	%	No.	%	
Melena	132	56,9	100	43,1	232
Anemia	40	57,1	30	42,9	70
Hematemesis	73	57,9	53	42,1	126
TOTAL	245	57,2	183	42,8	428

Table 1. Distribution of patients according to indication of endoscopy and sexes.

Source. CNCMA Endoscopy Database EndoSorex. January 2016-December 2017

Reasons.	< 40 years		40-59 years		60 and over		TOTAL
	No	%	No	%	No	%	
Melena	26	11,2	70	30,2	136	58,6	232
Anemia	8	11,4	12	17,1	50	71,4	70
He-matemesis	22	17,5	55	43,7	49	38,9	126
TOTAL	56	13,1	137	32,0	235	54,9	428

Table 2. Distribution of patients according to indications of endoscopy and group of ages.

Source. CNCMA Endoscopy Database EndoSorex. January 2016-December 2017

Reasons.	No.	%
Hemorrhagic gastritis.	136	31,8
Gástric ulcer type IIa y IIb.	86	20,1
Duodenal ulcer type IIa, IIb and IIc.	86	20,1
Gastric and dudenal angiodisplasia.	60	14,0
Esophageal varices	32	7,5
Portal gastrophathy	18	4,2
Erosive duodenitis.	10	2,3
Total	428	100,0

Table 3: Distribución of patients according to endoscopic diagnosis.

Source. CNCMA Endoscopy Database EndoSorex. January 2016-December 2017

Regarding the use of endoscopic therapy, it is shown in table 4; of the total number of patients who came for suspicion of gastrointestinal bleeding, this was only done in 169 patients (39.5%) while 259 (60.5%) were not treated as therapeutic. Related to therapeutic procedures, the most used was the injection of epinephrine 1:10 000; in 101 patients (59.8%), which corresponded to the therapy performed in ulcerative lesions, both duodenal and gastric types IIa and IIb. In type IIc ulcers, procedure was not performed. Therapy with APC was used in 45 patients (26.6%), band ligation was performed in 16 patients (9.5%); 15 with esophageal varices and in a patient who had varicose veins of Fundus with success, and finally, sclerotherapy with Polidocanol was performed in 7 patients (4.1%), who presented bleeding due to varicose veins in the gastric body resulting from a portal gastropathy. There were no complications during or after the endoscopic procedures and the patients returned without difficulties to their hospitals of origin.

Description	Endoscópico Terapeutic	No. Ptes	%
Endoscópico terapeutico	Therapy Injection of Epinephrine Plasma Argon Coagulator (APC)	101	59,8
	Ligature with elastic bands	16	9,5
	Esclerotherapy Polidocanol	7	4,1
	subtotal	169	39,5
Without endoscopic therapy		259	60,5
TOTAL		428	100,0

Table 4: Endoscopic therapeutics used in patients studied.

Source. CNCMA Endoscopy Database EndoSorex. January 2016-December 2017

Discussion

In the reception, endoscopic exploration, therapeutic and recovery of the patients attended in the NCMAS, the staff nurse play an important role, constituting an irreplaceable pillar in the handling of these cases.

When analyzing the data reflected in figure 1 we can point out that the low number of patients who underwent endoscopy, due to suspicion of digestive bleeding related to total number of endoscopies performed in our casuistry, is due to the fact that our center receive patients referred from other healthcare centers, where they have already received first-intention care and are sent to determine the etiological diagnosis or specialized endoscopic treatment of the causative condition. Similar reports that have been published in our country, with a number of patients that do not differ from what we present in this case. In a study carried out in

our Center in 1997, in patients with digestive bleeding due to peptic ulcer, when the institution was located in the University Hospital "Calixto Garcia" [8], a sample of 180 patients was obtained, coming from Emergency department. Also, Palomino., *et al.* [10] reported a casuistry of 110 emergency panndoscopies, performed at Finlay Hospital due to suspicion of upper digestive bleeding, in a group of patients that included the population of Marianao and west Havana, during the one year of period. Rego., *et al.* [12] conducted a study based on patient data at the Salvador Allende Hospital, during the first semester of 2006, where 161 clinical records of graduates were reviewed for upper digestive bleeding. In another study conducted on digestive bleeding by esophageal varices, performed in 8 hospitals in Havana City covering the period between 1988 and 1993, only a sample of 80 patients could be reached [13]. These studies allow us to affirm that our sample is not at all negligible for the conduct of our analysis.

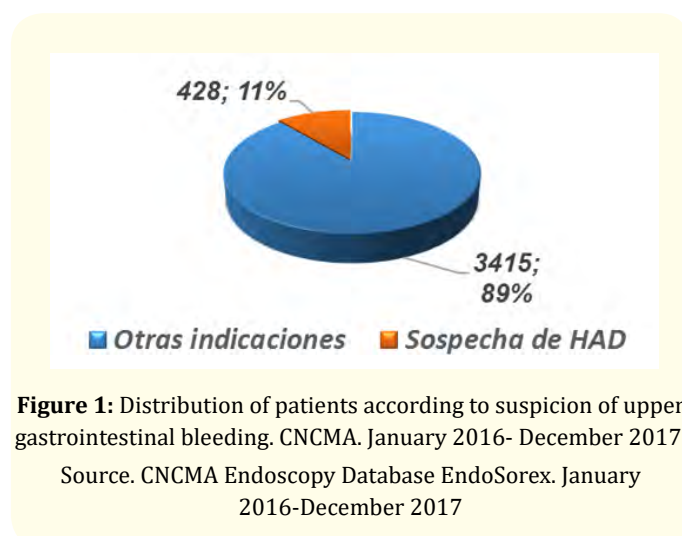


Figure 1: Distribution of patients according to suspicion of upper gastrointestinal bleeding. CNCMA. January 2016- December 2017.

Source. CNCMA Endoscopy Database EndoSorex. January 2016-December 2017

According to table 1, where the sex distribution of our casuistry is analyzed, it is stated in the majority of reports the gender male was the most affected, because gastroduodenal peptic ulcer is the main cause of bleeding episodes, however In our series, we observed that the female sex had a greater representation with more than half of the total cases that went to perform digestive endoscopy, which could be in relation to the high number of people of this sex who are currently taking Nonsteroidal anti-inflammatory drugs (NSAIDs), including acetylsalicylic acid, due to osteomyoarticular conditions present. These results coincide with other research carried out in our country, although the percentages found are not very significant [11,12]. In a similar way it is the behavior reported in the world, because the episode of digestive bleeding can be present in any sex, originated by the development of civilization, the increase of stress and the consumption of substances or drugs

aggressors to the digestive mucosa, especially nonsteroidal anti-inflammatory drugs (NSAIDs), considered the main causes of this entity in developed countries due to its high consumption [14-16].

Other reports made in Cuba point to the female sex as the most affected, Hierro., *et al.* [11] found in their work that 64.11% of the patients were women, however Rego., *et al.* [12], like us, did not find differences in their work in relation to sex, while Fernandez Machin [3] obtained in his casuistry a greater relationship of male patients affected with ulcerative symptoms. It is good to note that all these reports were made in works carried out in the community.

In the analysis of table 2; indications of endoscopy, in relation to age groups is raised in the literature, that the age over 60 for some authors and greater than 70 in others, mean high risk groups for the presentation of episodes of bleeding and its complications, constituting prognosis and risk indices for subsequent re-bleeding and mortality events [17-20].

In our study, the group of older than 60 years had a greater representation regarding the indication of the endoscopic procedure, in addition of this group was the one that presented the highest proportion in terms of the presence of the symptom that was the reason for indication of the test. This reaffirms the idea that digestive bleeding increases with age, and if we take into account that the life expectancy of the Cuban population is on the rise, it can condition the appearance of associated diseases, which requires control of the use of ulcerogenic drugs, such as Nonsteroidal anti-inflammatory drugs (NSAIDs) and the use of aspirin.

These results coincide with other reports made in our country [9,11,14], where the presentation in groups of ages over 60 years, puts us on alert to perform prevention work, directed towards that sector of the population, with a view to reducing the frequency of episodes of bleeding and the presence or aggravation of digestive disorders, considering the progressive aging of our population.

The endoscopic findings found during the procedure are shown in Table 3, where hemorrhagic gastritis was observed in the largest number of patients, followed by gastric peptic ulcer and duodenal ulcer in the same number of patients. Is notable the frequency of angiodysplasia was present in our patients over the esophageal varices, with a lower number of portal gastropathy and erosive duodenitis, knowing the frequency in our country of duodenal parasitism, causing frequent duodenitis and the presence of chronic hepatitis and liver cirrhosis of viral etiology.

This may be conditioned by the characteristics of the sample, because they are patients with a recent presentation of the bleeding episode to be studied in our recently inaugurated center in this

health area and therefore we do not have a higher frequency of other entities, such as presented in another study carried out in our institution when it was located in the "General Calixto Garcia Iñiguez" University Hospital, where it is known to have a emergency unit and hospital rooms with a greater volume of patients (Endoscopic treatment of upper digestive bleeding due to peptic ulcer. F. León., *et al.* CCE, Havana 1997. Unpublished work).

Research carried out in our country points to duodenal ulcer as the main cause of episodes of digestive hemorrhage, while other studies point to acute gastric [7-14]. This can also influence the characteristics of each population studied, where we know the presence of diseases is evident in different health scenarios, geographical areas, age groups, etc.

The use of therapeutic endoscopy, for the control of gastrointestinal bleeding, has revolutionized the treatment of this difficult health problem. As we have explained previously, endoscopy, in addition to identifying the etiology in 95% of the HDA, has a prognostic value and allows the application of endoscopic hemostasis techniques.

When analyzing the results shown in Table 4, in our work we had that in 39.5% of the patients some of the endoscopic therapeutic techniques used in our service were performed, including injecting with epinephrine 1:10 000; was the most applied, all of them carriers of digestive hemorrhage due to gastroduodenal peptic ulcer and type IIa and IIb lesions of Forrest endoscopic classification. Palomino., *et al.* [10] used a similar method in their report, with a high effectiveness in the treatment of patients with type I and II lesions. The endoscopic therapeutic method of injection is the most popular in our country and this is mainly because it is simple, cheap, technically easy and does not require sophisticated equipment or accessories; only one catheter is needed that contains a needle in its most distal part, which is introduced through the biopsy channel. This treatment significantly reduces the incidence of recurrence, the need for transfusion and surgery and can also reduce mortality.

The Argon Plasma Coagulator (APC) is a device used for coagulation without thermal contact with tissue [21,22]. The device was used for the first time in open and laparoscopic surgery procedures and in 1991 it was adapted for use in endoscopy. Since then, coagulation with argon plasma has expanded its clinical applications in the treatment of various gastrointestinal diseases [21-27]. It is an endoscopic procedure used mainly to control bleeding, lesions detected in the gastrointestinal tract and also for the treatment of precursor lesions of intraepithelial neoplasms, in the case of pa-

tients for whom surgery is not recommended. It is also used in the treatment of angiodysplasias and in vascular ectasias anywhere in the digestive tract, in actinic proctitis and in precursor lesions and in esophageal intraepithelial cancer. In our series, it was used in patients with lesions of gastric and duodenal angiodysplasias with good results. The use of APC has been indicated with a high effectiveness in non-variceal digestive bleeding [21-27], where there are national references in this regard [24].

Varicose hemorrhage is the latest event in a series of events that begins with increased portal pressure. This increase leads to a progressive dilation of the varices, until they finally break and bleed. The rupture of esophageal varices causes 70% of all episodes of gastrointestinal bleeding in patients with portal hypertension, therefore variceal bleeding should be suspected in any cirrhotic with acute gastrointestinal bleeding [28,29].

In our series we had 50 patients with endoscopic diagnosis of manifestations of portal hypertension, 32 of them with esophageal varices and 18 with portal hypertensive gastropathy. Ligation was performed with bands in patients with esophageal varices and in a patient who had varicose veins of the gastric fundus with success. The selection of the method to use, was due to the possibility of having the equipment of ligation set by band, considering that at the present time, this method should be the first option in esophageal varices, because it is safer than injecting with Polidocanol, it produces has lower risk of post treatment encephalopathy, lower risk of recurrence and a allows quick recovery of the patient [29].

Finally, sclerotherapy with Polidocanol was performed in patients who presented signs of bleeding from varices in the gastric body, the product of a portal gastropathy, considered more effective and feasible from the technical point of view, limited to the injection of 5-10 ml of 1% Polidocanol in the bleeding site, not having N-Butyl-2 Cyanoacrylate, which is the substance most used in this procedure.

In our series, no complications were reported in the performance of the endoscopic procedures.

Conclusion

We can conclude that the most frequent cause of upper gastrointestinal bleeding detected by endoscopy was hemorrhagic gastritis, followed by gastroduodenal peptic ulcer and vascular lesions, achieving endoscopic treatment in all patients, without complications derived from the procedures performed, constituting the epinephrine injection an effective, low cost and the most widely used in our casuistry. We report the results of the application of a new therapeutic to the management of digestive hemorrhage, the

plasma argon coagulator (APC), which opens new perspectives in the treatment of this entity.

Conflict of Interest

There is no conflict of interest between the parties or financial interests of other organizations.

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