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Endoscopic findings and outcomes of upper gastrointestinal bleeding patients in northern Iran population referred to the emergency department

Seyyed Abbas Hashemi, Seyed Mohammad Valizadeh, Sanaz Gonoodi, Iradj Maleki*

Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran

Key words: upper gastrointestinal hemorrhage, endoscopy, Iran, treatment outcome.

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***E-mail:** abbas.hashemi30@gmail.com

Gastrointestinal bleeding is one of the reasons that patients referred to the emergency department. In the majority of these patients, the bleeding stops spontaneously but some of them are high risk patients who may experience complications and may need endoscopic and surgical treatment. Mismanagement of these cases leads to high mortality. Different studies evaluated the causes of Upper GI bleeding but there is not any information about the distribution of these reasons in north of Iran.

Methods and material. This prospective study included patients with history of upper gastrointestinal bleeding between January 2017 and December 2018. A total of 249 patients underwent endoscopy for UGIB and the data were studied. Follow up was done for occurrence of re-bleeding or mortality.

Results. Our study revealed that the most common cause of upper GI bleeding was duodenal ulcer and gastric ulcer. Antrum was the main anatomical site for gastric ulcer. After the 15 days follow up in 17 (6.8 %) patients mortality existed and rebleeding was found in 11 (4.4 %) patients and the need for surgery in 3 (1.2 %) patients.

Conclusions. Like many parts of the world the most common source of upper gastrointestinal bleeding in our study was peptic ulcer diseases. Our study revealed that despite all diagnostic and treatment procedures still there is mortality (6.8 % mortality existed) due to GI bleeding.

Ключові слова: верхні шлунково-кишкові кровотечі, ендоскопія, Іран, результат лікування.

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Ендоскопічні дані та наслідки кровотечі з верхніх відділів шлунково-кишкового тракту в пацієнтів у північній частині Ірану, яких направили у відділення невідкладної допомоги

Сейєд Аббас Гашемі, Сейєд Мохаммад Валізадех, Саназ Ґонооді, Ірадж Малекі

Шлунково-кишкові кровотечі є однією з причин, через яку пацієнти звертаються у відділення невідкладної допомоги. У більшості цих осіб кровотеча припиняється самостійно, але деякі з них є пацієнтами високого ризику, в них можуть виникнути ускладнення і, можливо, буде необхідне ендоскопічне та хірургічне лікування. Неправильне ведення в цих випадках призводить до високої смертності. Різні дослідження оцінювали причини кровотеч із верхньої частини шлунково-кишкового тракту, але немає інформації щодо поширення цих причин на півночі Ірану.

Матеріали та методи. Проспективне дослідження включало пацієнтів з анамнезом шлунково-кишкової кровотечі в період від січня 2017 до грудня 2018 р. Вивчили дані 249 пацієнтів, яким виконали ендоскопію з приводу шлунково-кишкової кровотечі. Надалі здійснили дослідження щодо виникнення повторної кровотечі або смертності.

Результати. З'ясували, що найбільш частою причиною кровотеч із верхньої частини шлунково-кишкового тракту були виразка дванадцятипалої кишки та виразка шлунка. Антрум – основна анатомічна ділянка при виразковій хворобі шлунка. Після 15 днів спостереження зафіксували 17 (6,8 %) летальних випадків, у 11 (3,4 %) пацієнтів виявили повторну кровотечу, у 3 (1,2 %) – необхідність хірургічного втручання.

Висновки. Як і в багатьох країнах світу, найбільш поширеним джерелом кровотеч із верхніх відділів шлунково-кишкового тракту у виконаному дослідженні були виразкові хвороби. З'ясували, що, незважаючи на всі діагностичні й лікувальні процедури, все ще є смертність (6,8 %) від кровотеч у шлунково-кишковому тракті.

Ключевые слова: верхнее желудочно-кишечное кровотечение, эндоскопия, Иран, исход лечения.

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Эндоскопические данные и последствия кровотечения из верхних отделов желудочно-кишечного тракта у пациентов в северной части Ирана, направленных в отделение неотложной помощи

Сейед Аббас Хашеми, Сейед Мохаммад Вализадех, Саназ Гонооди, Ирадж Малеки

Желудочно-кишечные кровотечения – одна из причин, по которой пациенты обращаются в отделение неотложной помощи. У большинства кровотечение прекращается самостоятельно, но некоторые из них являются пациентами высокого риска, у которых могут возникнуть осложнения и, возможно, потребуется эндоскопическое и хирургическое лечение. Неправильное ведение в этих случаях приводит к высокой смертности. Различные исследования оценивали причины кровотечений из верхней части желудочно-кишечного тракта, но нет информации о распространении этих причин на севере Ирана.

Материалы и методы. Проспективное исследование включало пациентов с анамнезом желудочно-кишечного кровотечения в период с января 2017 по декабрь 2018 г. Изучили данные 249 пациентов, прошедших эндоскопию по поводу

желудочно-кишечного кровотечения. Последующее исследование касалось возникновения повторного кровотечения или смертности.

Результаты. Установили, что наиболее частой причиной кровотечений из верхней части желудочно-кишечного тракта были язва двенадцатиперстной кишки и язва желудка. Антрум – основной анатомический участок при язвенной болезни желудка. После 15 дней зафиксировали 17 (6,8 %) летальных исходов, у 11 (3,4 %) пациентов обнаружено повторное кровотечение, у 3 (1,2 %) – необходимость хирургического вмешательства.

Выводы. Как и во многих странах мира, наиболее распространенным источником кровотечений из верхних отделов желудочно-кишечного тракта в нашем исследовании были язвенные болезни. Исследование показало, что, несмотря на все диагностические и лечебные процедуры, все еще существует смертность (6,8 %) от кровотечений в желудочно-кишечном тракте.

Upper GI bleeding is a serious condition which affects many individuals worldwide. It is a common cause of hospitalization, and it has been estimated that it has a mortality rate of 5–10 % [1] Based on current studies annual incidence of 89.8 per 100,000 populations have been devoted to Upper GI bleeding. Men with age of 61 and 69 years are supposed to experience hemorrhage more and totally it has been reported that mortality of UGH is about 8.2 cases per 100.000 populations per year [1,2].

Upper GI bleeding is a potentially life-threatening event, has been indicated that many patients can be considered for outpatient treatment [3]. Convenient endoscopic diagnosis and treatment would improve the patients' outcomes and will increase the quality of life of the patients and also will reduce the rate of rebreeding. Therefore early diagnostic endoscopy is mandatory for Upper GI bleeding.

It has been known that non-steroidal anti-inflammatory drugs (NSAIDs) and H. pylori infections are two common risk factors for upper gastrointestinal bleeding [4]. But other risk factors are still under studies. Many studies have investigated the cause and sources of Upper GI bleeding but there is not any information about the distribution of these reasons in north of Iran meaning Mazandaran province. There in this prospective research we studied the endoscopic findings of Upper GI bleeding in this area in order to establish basic library for future studies and our plans for emergency treatments.

Materials and methods

This prospective study included all referral objects to endoscopy unit from both the hospital's own departments and surrounding hospitals in Mazandaran province with history of upper gastrointestinal bleeding between January 2017 and December 2018. Demographic data, vital signs, laboratory tests results, history of comorbid problems (e.g., renal, liver, cardiac, pulmonary disease, and cancer), and anticoagulant and/or antiplatelet drug users were noted on admission and during follow up. Endoscopy was performed by the investigators according to standard protocols. In this study endoscopy was performed with Pentax and Olympus endoscopes and APC treatment was performed with Erb Company. A total of 249 patients underwent endoscopy for UGIB and the data were studied. Follow up was done for occurrence of re-bleeding or mortality. A 103-cm esophagogastroduodenoscope (EVIS Lucera GIF H260, Olymphus Optical, Tokyo, Japan) was used.

Inclusion criteria. Patients were referred to Imam Khomeini hospital because of upper gastrointestinal bleeding; those were included who were over the age of 18 years, patients with symptoms of hematemesis and melena or vomiting with simultaneous Coffee Ground discharge and satisfaction for an endoscopy of the esophagus and stomach.

Exclusion criteria. Cases that not confirmed upper gastrointestinal bleeding for any reason, Gastrointestinal bleeding due to esophageal varices or sharp objects or burning material, patients not consenting to the endoscopy of the esophagus and stomach and who were receiving antihelicobacter treatment or proton pump inhibitors for a month prior to the investigation were excluded.

Table 1. Demographic data of the cases

		Number	Percent
Gender	Male	159	63.9
	Female	90	36.1
Age	Less than 60 years	118	47.4
	79–60 years	98	39.4
	More than or equal to 80 years	33	13.3
History of smoking	Yes	55	22.1
	No	194	77.9
History of peptic ulcer	Yes	63	25.3
	No	186	74.7
History of aspirin use	Yes	90	36.1
	No	159	63.9
A history of NSAID	Yes	86	34.5
	No	163	65.5
History of Clopidogrel	Yes	16	6.4
	No	233	93.6
History of warfarin	Yes	11	4.4
	No	238	95.6
History of PPI	Yes	52	20.9
	No	197	79.1
History of H2 blocker	Yes	54	21.7
	No	195	78.3
History of previous GI bleeding	Yes	41	16.5
	No	208	83.5
History of cardiovascular disease	Yes	63	25.3
	No	180	72.3
	Unknown	6	2.4
A history of liver problems	Yes	10	4
	No	219	88
	Unknown	20	8
Chronic renal failure	Yes	13	5.2
	No	239	94.8
Cancer history	Yes	15	6
	No	234	94
History of chemotherapy	Yes	8	3.2
	No	241	96.8

Table 2. This table shows the findings of upper endoscopy in patients' referred to our center with upper GI bleeding

	Endoscopic findings	number	percent
Esophagus	GERD-A	9	3.6
	GERD-B	2	0.8
	GERD-C	0	0
	GERD-D	6	2.4
	Mallory Weiss	11	4.4
	Ulcer of esophagus	18	7.2
	Esophageal cancer	4	1.6
Stomach	Erosions	35	14.1
	Ulcer	81	32.5
	- Cardia	12	4.8
	- Wind	34	13.7
	- Fundus	3	1.2
	- Antrum	55	22.1
	Mass	13	5.2
	Polyps	2	0.8
Duodenum	erosion	15	6
	Ulcer	107	43
	Polyps	1	0.4

Tables 3. Causes of gastrointestinal bleeding

Endoscopic findings	number	Percent
Esophageal Cancer	2	0.8
Esophageal Ulcer	2	0.8
Mallory Weiss	28	11.2
GU	53	21.3
Gastric Erosion	29	11.6
Gastric Cancer	13	5.2
Gastric Polyp	2	0.8
Dieulafoy's lesion	3	1.2
DU	83	33.3
Duodenal Erosion	7	2.8
DU + GU	25	10.0
Duodenal Polyp	1	0.4
Fistula from Colon Cancer	1	0.4
Total	**249**	**100**

Table 4. Endoscopic treatment of patients

The need for endoscopic treatment	Number of patients (%)
No need to endoscopic treatment	169 (67.87 %)
Requires an endoscopic treatment (APC or epinephrine)	18 (7.23 %)
Need to double acting endoscopic treatment (APC and epinephrine)	62 (24.9 %)
Endoscopic treatment requires three steps (APC and epinephrine and clips)	2 (0.8 %)

Ethical approval. All patients provided informed consent to inclusion in the study. This study was approved by the Ethics Committee of the Mazandaran University of Medical Sciences, Sari, IRAN.

Statistical analysis. Results were shown as number and percent. The procedures included were transcription, preliminary data inspection, content analysis and finally interpretation. Statistical analysis was performed with SPSS software (version 20, Chicago, IL, USA).

Results

The study has been done on patients with upper gastrointestinal bleeding who were admitted to Imam Khomeini Hospital, Sari, Iran. The population consisted of 249 patients. Age of the patients studied were from 15 years to 98 years, with an average age of patients was 42.57 ± 18.9. *Table 1* showed the demographic data of the cases.

Endoscopic findings of the patients were based on three parts: esophagus, stomach and duodenum; they are summarized in *Table 2*.

The most common cause of bleeding in patients was peptic ulcers, duodenal ulcer was seen in 83 patients (32.9 %), followed by gastric ulcer in 53 patients (21.0 %) (*Table 3*).

Endoscopic views of peptic ulcer were as follows: 96 patients (38.6 %) had Clean Base and in 8 patients (3.2 %) adherent clot and 30 patients (12.0 %) Visible Vessel and 21 patients (8.4 %) Flat Pigment has been reported. 27 patients had (10.8 %) ulcer with Oozing and 1 patient (0.4 %) spurting bleeding and 7 patients (2.8 %) had active bleeding (Fresh bleeding), respectively.

Endoscopic treatment measures were as follows: In 72 cases (28.9 %) were injected with adrenaline and in 70 patients treated with (28.1 %) APC and in 2 cases (0.8 %) clips were prescribed.

In general, endoscopic treatment in patients was presented in *Table 4*.

Outcome in the patients after 15 days: in 17 patients (6.8 %) mortality existed. After the 15 days rebleeding was found in 11 patients (4.4 %) and the need for surgery in 3 patients (1.2 %) and the need for blood transfusions in 6 patients (2.4 %) were reported.

Discussion

Our study revealed that the most common cause of upper GI bleeding was duodenal ulcer and gastric ulcer. Antrum was the main anatomical site for gastric ulcer.

The peptic ulcer disease which has been indicated to be the commonest source of UGIB mainly in the west [5–9] was the main cause in our study, too.

The mean age of the patients who had UGIB in this paper was 42 years and this is similar to other studies reported in Africa and Asia [10–12].

In a study by Elwakil et al. [13] evaluated the causes of upper GI bleeding in Egyptians population and reported that gastric lesions were the most common sources of non variceal bleeding. Recurrence of bleeding reported

in 6.1 % of non variceal group, while mortality was found in 1.5 % of non variceal group (5). In consistent with this study, our research showed that in 17 patients (6.8 %) mortality existed and rebleeding was reported in 11 patients (4.4 %).

In this regards, a paper published by Kim JJin et al. [12] revealed that Mean age of their patients was 52 years; 75 % were male. Like this study the majority of our cases were male 63.9 % with mean age of 42 years. The most common causes of bleeding in his study were ulcers in 34 %, varices 33 %, and erosive esophagitis in 8 % while in our research the most common cause of bleeding in patients was duodenal ulcer in 32.9 % and gastric ulcer in 21 %. Also we exclude the varices source of bleeding in our paper. In Kim JJin study during hospitalization, 129 (6.7 %) died (5.2 % for ulcers; 9.2 % for varices). similarly in our investigation 17 patients (6.8 %) died.

Another study which was performed by O. N. Alema and coworkers [14] evaluated 224 patients with upper gastrointestinal bleeding. The population of his study included 113 (50.4 %) males and 111 (49.6 %) females, and the mean age was 42.00 years ± SD 15.88, likewise in our study the main section of the study population were male and the mean age was similar. The main sources of bleeding in their study were esophageal varices including 40.6 %, followed by esophagitis (14.7 %), gastritis (12.6 %) and peptic ulcer disease (duodenal and gastric ulcers) was 6.2 %. The malignant conditions (gastric and esophageal cancers) contributed to 2.6 %, hiatus hernia (1.8 %), duodenitis (0.9 %), others-gastric polyp (0.4 %) and normal endoscopic in 16.1 %. In our study cancer was found in 15 cases.

A study [15] which examined 460 patients with upper gastrointestinal bleeding in Kosova reported that means age was 56.85 ± 16.18 years, while male / female ratio was 2.71/1.00. Peptic ulcer was the main cause of bleeding (82.2 %) like our work. The main part of study population was at age group of 60–69 years (27.1 %). In contrast with our study, we found that most of the cases were less than 60 years. In this report Rebleeding was noticed in 4.1 % of all patients while the overall mortality rate was 5.7 %. In 17 patients (6.8 %) of our cases mortality existed and rebleeding was founded in 11 patients (4.4 %).

Conclusions

The most common cause of upper gastrointestinal bleeding in our study was peptic ulcer diseases. Our study revealed that despite all diagnostic and treatment procedures still there is mortality (6.8 % mortality existed) due to GI bleeding.

Conflicts of interest: authors have no conflict of interest to declare.
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Information about authors:
Seyyed Abbas Hashemi, Resident of Internal Medicine, Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran.
Seyed Mohammad Valizadeh, Assistant Professor of Gastroenterology, Department of Internal Medicine, Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran.
Sanaz Gonoodi, Fellow of Gastroenterology, Department of Internal Medicine, Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran.
Iradj Maleki, Associate Professor of Gastroenterology, Department of Internal Medicine, Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran.

Відомості про авторів:
Сейєд Аббас Ґашемі, резидент зі спеціальності внутрішня медицина, Науково-дослідний центр кишечника та печінки, Мазандаранський університет медичних наук, м. Сарі, Іран.
Сейєд Мохаммад Валізадех, асистент зі спеціальності гастроентерологія, каф. внутрішньої медицини, Науково-дослідний центр кишечника та печінки, Мазандаранський університет медичних наук, м. Сарі, Іран.
Саназ Ґонооді, науковий співробітник зі спеціальності гастроентерологія, каф. внутрішньої медицини, Науково-дослідний центр кишечнику та печінки, Мазандаранський університет медичних наук, м. Сарі, Іран.
Ірадж Малекі, доцент зі спеціальності гастроентерологія, каф. внутрішньої медицини, Науково-дослідний центр кишечника та печінки, Мазандаранський університет медичних наук, м. Сарі, Іран.

Сведения об авторах:
Сейед Аббас Хашеми, резидент по специальности внутренняя медицина, Научно-исследовательский центр кишечника и печени, Мазандаранский университет медицинских наук, г. Сари, Иран.
Сейед Мохаммад Вализадех, ассистент по специальности гастроэнтерология, каф. внутренней медицины, Научно-исследовательский центр кишечника и печени, Мазандаранский университет медицинских наук, г. Сари, Иран.
Саназ Гонооди, научный сотрудник по специальности гастроэнтерология, каф. внутренней медицины, Научно-исследовательский центр кишечника и печени, Мазандаранский университет медицинских наук, г. Сари, Иран.
Ирадж Малеки, доцент по специальности гастроэнтерология, каф. внутренней медицины, Научно-исследовательский центр кишечника и печени, Мазандаранский университет медицинских наук, г. Сари, Иран.

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