

Acute Upper Gastro-Intestinal Bleeding; Its Etiology and Management in Karbala: An Epidemiological study

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Abstract:

Acute Upper Gastrointestinal Bleeding is a common medical emergency and potentially life threatening condition that needs a prompt assessment and aggressive medical management. To assess the causes, risk factors, and management of acute upper gastrointestinal bleeding in Karbala city; 150 patients (58 females; 92 males) with acute upper gastrointestinal bleeding were studied during the period of March 2011-March 2012 in Al-Hussein Teaching Hospital. Their age range was (14-89 yr). About 39% of cases were over 60 years old. Peptic ulceration was the commonest cause accounting for 63.3% of cases, followed by acute gastric erosions 18.7%, oesophageal varices 6.7%, and malignant ulcers 4.7%. Non-steroidal anti-inflammatory drug ingestion was the most important risk factor for acute upper gastrointestinal bleeding in addition to smoking and *H. pylori* infection. Co-morbidity was present in about 50% of cases. The use of acid lowering agents such as proton pump inhibitors was the mainstay of therapy for patients with upper gastrointestinal bleeding followed by H₂-antagonist. The mortality rate reported in this study was 5.3%. In conclusion, it appears that the most common cause of acute upper gastrointestinal bleeding is acid peptic disease, which increases with the increasing age, frequent consumption of non-steroidal anti-inflammatory drugs, smoking and *H. pylori* infection. Early diagnosis and prompt treatment are effective in decreasing mortality and morbidity.

نزيف الجهاز الهضمي العلوي الحاد ؛ اسبابه ومعالجته في مدينة كربلاء : دراسة وبائية

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مفتاح البحث : نزيف الجهاز الهضمي ، دراسة وبائية

الخلاصة:

نزيف الجهاز الهضمي العلوي الحاد هو حالة طارئة طبية شائعة وحالة تهدد الحياة ، تحتاج إلى تقييم سريع وإدارة طبية مكافحة. لتقييم أسباب وعوامل الخطر، وكيفية إدارة النزيف الحاد في الجهاز الهضمي العلوي في مدينة كربلاء؛ تمت دراسة 150 مريضاً (58 من الإناث و92 ذكور) لديهم نزيف الجهاز الهضمي العلوي الحاد خلال الفترة من آذار 2011- آذار 2012 في مستشفى الحسين التعليمي. كان مدى العمر (14-89 سنة). وكان حوالي 39% من الحالات أكثر من 60 سنة. كانت القرحة الهضمية هي السبب الأكثر شيوعاً ل63,3% من الحالات، تليها تقرحات المعدة الحاد 18,7%، ثم دوالي المرئ 6,7%، والقرح الخبيثة 4,7%. كان تناول الأدوية المضادة للالتهابات غير الستيرويدية هو عامل الخطر الأكثر أهمية لنزيف الجهاز الهضمي العلوي الحاد بالإضافة إلى التدخين والاصابة بالبكتيريا الحلزونية البوابية. الاعتلالات المصاحبة كانت موجودة في حوالي 50% من الحالات. وكان استخدام الادوية المخفضة لحمض المعدة مثل مثبطات مضخة البروتون الدعامية الأساسية لعلاج المرضى الذين يعانون من نزيف الجهاز الهضمي العلوي يلبه مضادات مستقبلات الهستامين 2. وكان معدل الوفيات المسجلة في هذه الدراسة 5,3%. في الاستنتاج، يبدو أن السبب الأكثر شيوعاً لنزيف الجهاز الهضمي العلوي الحاد هو مرض القرحة الهضمية، مما يزيد مع زيادة

العمر وكثرة استهلاك الأدوية المضادة للالتهابات غير الستيرويدية والتدخين والاصابة بالبكتيريا الحلزونية البوابية. التشخيص المبكر والعلاج الفوري والفعال يساهم في خفض معدلات الوفيات والمراضة.

Introduction

Upper gastrointestinal bleeding (UGIB) is defined as bleeding originating in the distal esophagus, stomach or duodenum (proximal to the ligament of Treitz).⁽¹⁾ Acute UGIB is a common medical emergency and potentially life threatening condition that needs a prompt assessment and aggressive medical management and is associated with increased morbidity and mortality as well as substantial costs to the health care system.^(1,2) Despite advances in endoscopic hemostatic therapy and pharmacotherapy, the mortality rate associated with upper GI bleeding has remained unchanged at 7% to 10%. This may be because today's patients are older and have more comorbidities than those in the past.^(2,3)

UGIB is a common occurrence throughout the world. The incidence of UGIB varies between 50-150 hospital admissions per 100,000 population in a year (approximately 1% of all emergency room admissions).^(4,5) In Iraq it accounts for about 8% of hospital admission to the medical beds.⁽⁶⁾

It has many causes whose relative frequency varies from country to country, the variations depending on the pattern of the underlying disease encountered in different parts of the world.⁽⁷⁾ Though peptic ulceration accounts for about half the cases in many series yet there are many other causes and the diagnosis in the individual patients may be difficult.⁽⁸⁾ Clinical pointers are often misleading, ulcers may be found in the absence of previous symptoms and patients with known ulcers or varices may bleed from other sites.^(8,9)

This is a prospective epidemiological study of patients with acute upper gastrointestinal bleeding admitted to Al-Hussein teaching hospital in Karbala to evaluate the clinical data, etiology, risk factors, and co-morbidity in addition to the management and outcome of those patients.

Patients and Methods

This study was conducted in AL-Hussein Teaching Hospital in Karbala in March 2011-March 2012. One hundred fifty (150) patients with acute upper gastrointestinal bleeding admitted to the medical and surgical units were collected; (58 females; 92 males) in the age range (14 – 89 years) old.

A full history and clinical examination were done with a special emphasis on history of previous bleeding, history of peptic disease and drug ingestion. The severity of the bleeding was assessed by clinical impressions; pulse rate, blood pressure and total duration of bleeding. A provisional diagnosis of the cause of bleeding was recorded to compare it later with the final diagnosis to evaluate the accuracy and the benefit of early correct diagnosis to the individual patients.

Complete blood picture tests were done for each patient. Liver functions tests and liver biopsy were done in cases suspected to have liver disease. Upper Gastro-Intestinal Endoscopy was done in (115) patients, usually within first 48 hours of admission. During endoscopic examination a lesion was designated to be the cause of bleeding only if no other source could be found in a full survey oesophagus-stomach-duodenum or preferably when the lesion showed unequivocal evidence of recent bleeding (black base, adherent clot, protruding artery or actual oozing).⁽¹⁾ Those patients whom endoscopic examination was not done due to refusal or unfit for it, the diagnosis was known from review of previous endoscopic examination in addition to other investigations and imaging.

Results:

The distribution of age & gender of patients with acute UGIB are shown in Table (1).

Modes of presentation of patients with acute UGIB are illustrated in Table (2).

Causes of acute UGIB are shown in Table (3): The major causes were peptic ulceration, followed by acute gastric erosion and oesophageal varices (portal hypertension) accounting for about 88% of all causes. Peptic ulceration was the commonest cause of bleeding constituting 63% of patients where duodenal ulcer predominating in 84 patients (88.5%) over gastric ulcer in 11 patients (11.5%). Accuracy of the diagnosis: Comparing the provisional diagnosis on admission to the final diagnosis after investigations, they coincided in 75% of the whole group and differed in 25% of cases. The

accuracy of diagnosis in the oesophageal varices group was 90%, in the peptic ulcer group it was 70% whereas in the gastric erosion group it was 40%.

Risk factors for UGIB are shown in Table (4): Aspirin and/or other non-steroidal anti-inflammatory drugs (NSAIDs) ingestion, smoking, & *H. pylori* infection were the most common identified risk factors. There was a definite history of taking aspirin or other NSAIDs in about 70% of patients with gastric erosions as well as in 35% of patients with peptic ulcerations.

The incidence of recurrent bleeding was 38% (57 patients out of 150). There was a high incidence of recurrent bleeding in patients with varices 70% and duodenal ulceration 50%.

Concomitant illnesses are shown in Table (5): About 50% of patients had co-morbidity.

Table (6) shows the treatment categories of UGIB: About two third of patients received blood transfusions. About 75% of patients received proton pump inhibitors. Ten patients treated surgically 8 of them saved 2 of them died after surgery.

Mortality rate: Eight patients died (5.3%). Their ages were between 45-70 years old.

Discussion:

Demographic features and pattern of illness in patients hospitalized with Acute UGIB have changed during the last decades. A fall in the incidence of AUGIB during the last years has been reported, as well as a striking increase in the proportion of older patients being presented with AUGIB.⁽¹⁰⁾ About 30%-45% of all patients presented with AUGIB were over 60 years old in previous studies.^(11,12) Likewise, in this study; patients over 60 years of age constitute 39% of the total population with AUGIB. The increase incidence of upper gastrointestinal tract bleeding in older population can be explained by the increase in geriatric population and some of the common geriatric problems such as coronary artery disease, degenerative joint disease and osteoarthropathies and eventually excessive consumption of all kinds of NSAIDs and low dose aspirin as main standard therapies.^(4,11) It is therefore clear that now we have to deal with an older population with a higher risk of deterioration due to the presence of higher co-morbidities, making their management a clinical challenge.

The percentage of male patients in this study was higher than female, which was a similar finding in comparison with a study in a nearby country.⁽¹³⁾

In this study it was found that the most common cause of UGIB was peptic ulcer 63.3%. Previous studies in Iraq^(6,14) also showed that chronic peptic ulceration is the commonest cause of bleeding. Similar results have been reported from various parts of the world though relative incidence of peptic ulcer bleeding was significantly higher.^(13,15)

Gastric erosion constituted the second common cause of UGIB accounting for 18.7% which is comparable to 27% reported by Avery-Jones *et al.*⁽¹⁵⁾ In a previous study in Iraq done by Kassir Z⁽⁶⁾, the incidence of acute erosion was 10%.

Oesophageal varices was the third common cause of bleeding accounting for 6.7% in our results which is low in comparison to 16% and 21% in previous studies in Iraq^(6,14) showing that liver cirrhosis is a relatively common cause of variceal bleeding in Iraq. The decreasing rate of variceal bleeding in comparison to previous studies in Iraq and other countries may be explained by the wide use of effective drugs for chronic hepatitis/cirrhosis caused by hepatitis B and C viruses and autoimmune hepatitis as primary prevention methods for variceal bleeding; in addition to that the consumption of alcohol in Karbalais uncommon. Other cause of AUGIB that is associated with alcoholic consumption is Mallory-Weiss tears, which was found in just few patients in this study.

The use of NSAIDs has been emphasized as a risk factor for upper gastrointestinal bleeding.⁽¹⁶⁾ In this study the use of NSAIDs was similar to that reported by others.⁽¹⁷⁾

Although, *H. pylori* infection has been one of the most common causes of peptic ulcer disease, and eventually AUGIB, in the developing countries⁽¹⁶⁾ we found that only 16.0% of patients proved to be with positive *H. pylori*. It seems that due to better sanitation, better diagnostic and therapeutic approaches, rate of AUGIB secondary to *H. pylori* infection has been decreased.⁽¹³⁾

Regarding the management of our patients about 82% of patients received intravenous fluid therapy; this resuscitation depends on the patient's health status and the intensity of the

bleeding. Because of blood loss, it is important to evaluate cardiac hemodynamic status by measuring the heart rate and blood pressure in addition to the hydration. About two third of patients were received blood transfusion and/or its products (fresh frozen plasma).

The use of acid lowering agents was the mainstay of therapy, proton pump inhibitors (PPI) are the most effective in reducing gastric acid secretion to accomplish optimal pH and reducing bleeding. Esmoprazole and omeprazole were given to 41.3% and 33.3% of patient respectively which are the most effective and available agents in Al-Hussein Hospital, but lansoprazole was given only to 10% of patient because it's less available.

H₂-antagonist are less effective than PPI as acid lowering agents but we found that 28% of patients were received Ranitidine and about 18% were received Cimetidine, this may depend on the etiology of bleeding or the availability. Some cases were given a combination of PPI and H₂-antagonist, which show better acid suppression and may accelerate the healing of lesion. Antacid were given only to 8.6% of patients due to its short duration of action and less effectivity than PPI and H₂-antagonist.

It was noticed that the most used antimicrobial agents were metronidazole, amoxicillin, & Clarithromycin which are effective therapy (in combination with PPI) for eradication of *H. pylori*. Other antimicrobial agents like cephalosporins, ciprofloxacin, aminoglycosides (which are available in the hospital) are given to patients with upper gastrointestinal bleeding to treat associated infections.

Anti-bleeding agents that were used in our patients include Tranexamic acid given to 35.3% and Vitamin K given to 8%. Since Tranexamic acid is more effective in reducing bleeding rate than Vitamin K, more patients were treated with it.

The mortality rate reported in this study was 5.3% which is compared favorably with other studies 8%⁽⁸⁾ and 9%^(10,18). This may reflect proper management of patients which include early diagnosis and prompt and effective treatment.

The value of early diagnosis could not be measured only in terms of mortality but it facilitates decisions concerning medical or surgical treatment and the need for intensive monitoring, detailed investigations and the length of hospital stay. A patient claiming to have haematemesis may not even require admission if an endoscopic survey is negative. During this study two patients were encountered who claimed to be bleeding but had negative endoscopies and careful observation revealed that one was indulging in grape juice and the other in pomegranate juice. Both beverages give vomitus and stools black color. On the other hand negative endoscopy in a patient with melaena may indicate an urgent need for investigations of distal bowel.

Conclusion and Recommendation:

In conclusion, it appears that the most common cause of AUGIB is acid peptic disease (including ulcers, erosions, and gastritis), which increases with the increasing age, and frequent consumption of NSAIDs. It is therefore suggested to take a thorough history pertaining to acid peptic disease, before the start of aspirin or other NSAIDs and possibly prescription of proton pump inhibitors especially in high risk groups (older age, concurrent anticoagulant, or steroid users, etc). The attention to early diagnosis and prompt treatment of patients with AUGIB with admission to hospital and urgent endoscopy after resuscitation should be over emphasized.

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Table (1): Demographic data of patients with acute U.G.I.B.		
Gender	Number of cases	Percentage (%)
Male	92	61.3
Female	58	38.7
Total	150	100
Age	Number of cases	Percentage (%)
(10-19) y	12	8.0
(20-29) y	22	14.7
(30-39) y	26	17.3
(40-49) y	19	12.7
(50-59) y	12	8.0
(60-69) y	16	10.7
(70-79) y	35	23.3
(80-89) y	8	5.3
Total	150	100

Table (2): Modes of Presentations of patients with acute U.G.I.B.		
Presentation	Number of cases	Percentage (%)
Haematemesis	30	20%
Melaena	50	33.3%
Haematemesis&Melaena	70	46.7%
Total	150	100%

Table (3): Causes of Acute U.G.I.B.		
Causes	Number of cases	Percentage (%)
Peptic Ulcer	95	63.3
Gastric erosion	28	18.7
Oesoph.varices	10	6.7
Malignancy	7	4.7
Vascular anomalies	3	2.0
Mallory Weiss tears	2	1.3
No identified cause	5	3.3
Total	150	100

Table (4): Risk factors for Acute U.G.I.B.		
Types of Risk factors	Number of cases	Percentage (%)
NSAIDs	53	35.3
Smoking	38	25.3
<i>H. pylori</i>	24	16.0
Trauma	3	2.0
No identified Risk factors	32	21.3
Total	150	100

Table (5): Concomitant Diseases in patients with acute U.G.I.B.		
Concomitant Diseases	Number of patients	Percentage (%)
Hypertension	30	20

Diabetes Mellitus	18	12
Ischemic heart disease	15	10
Degenerative Joint Disease	11	7.3
No identified concomitant illness	76	50.6
Total	150	100

U.G.I.B. : Upper Gastro-Intestinal Bleeding

NSAIDs :Non-Steroidal Anti-Inflammatory Drugs

Table (6): Treatment Categories of Acute U.G.I.B.		
Treatment	Number of patient	Percentage (%)
Blood & its products		
Blood transfusion	97	64.6
Fresh Frozen Plasma	14	9.3
I.V Fluids		
Normal Saline	48	32
Dextrose Saline	45	30
Dextrose Water	30	20
Antiemetic agents		
Metoclopramide	56	37.3
Domperidone	12	8
Vitamin B6	8	5.3
Acid lowering agents		
Esomeprazole	62	41.3
Omeprazole	50	33.3
Ranitidine	42	28
Cimetidine	28	18.6
Lansoprazole	15	10
Antacid	13	8.6
Antimicrobial agents		
Metronidazole	38	25.3
Amoxicillin	30	20
Cefotaxime	28	18.6
Ceftriaxone	19	12.6
Clarithromycin	13	8.6
Ciprofloxacin	9	6
Amikacin	6	4
Nystatin	4	2.6
Fluconazole	2	1.3
Antibleeding agents		
Tranexamic acid	53	35.3
Vitamin K	12	8
Surgery		
Laparotomy	10	6.6