

Demographic and causal pattern of acute upper gastrointestinal bleeding in Mosul

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ABSTRACT

Objectives: To assess the age and sex distribution of 200 patients presented with acute upper gastrointestinal bleeding (AUGIB) in Al-Salam General Hospital in Mosul, and to identify the causes of bleeding through endoscopic examination.

Patients and methods: This is a case series study of 200 patients with (AUGIB) at the endoscopy unit in Al-Salam general hospital in Mosul, during the period from April 1999 to January 2009. The endoscopic findings, causes of bleeding and the patients' age and gender were recorded, analysed and the results were compared with other similar studies.

Results: The mean age of the patients was 43.68 ± 19.11 years; those aged 60 years and above constituted 25.5% (51/200). Male:female ratio was ~ 2:1 (135 male, 65 female). Gastroduodenitis with erosions and duodenal ulcer (DU) were the main causes of (AUGIB) constituting 42.5% and 30.5% respectively. Actively bleeding (DU) constituted 36.1% (22/61) while actively bleeding erosions constituted 16.5% (14/85) which is a significant difference ($p=0.008$). Non-steroidal anti-inflammatory drugs (NSAIDs) were associated with bleeding in 9% of the cases (18/200).

Conclusions: In this sample from Mosul city, (AUGIB) afflicted a relatively younger age group compared with western studies, while male: female ratio was nearly similar (2:1).

Gastroduodenitis with erosions dominated the causes of bleeding and (DU) came next in frequency, while (DU) is the main cause in most western studies. The results of this study coincide more with the results from some developing countries.

Keywords: Acute upper gastrointestinal bleeding, gastroduodenitis, non-steroidal anti-inflammatory drugs.

الخلاصة

الأهداف: التعرف على عمر وجنس ٢٠٠ مريض مصابين بنزف حاد من أعلى القناة الهضمية تم فحصهم بواسطة الناظور في مستشفى السلام العام في مدينة الموصل، وكذلك لمعرفة أسباب هذا النزف.

المرضى وطريقة البحث: تم دراسة حالات متسلسلة لمئتي مريض مصابين بنزف حاد من أعلى القناة الهضمية في وحدة الناظور في مستشفى السلام العام في الموصل خلال الفترة من نيسان ١٩٩٩ لغاية كانون الثاني ٢٠٠٩. تم تسجيل وتحليل نتائج الفحص الناظوري وأسباب النزف وأعمار المرضى وجنسهم ومقارنة النتائج مع دراسات أخرى مشابهة.

النتائج: كان متوسط عمر المرضى $43,68 \pm 19,11$ سنة. شكل المرضى اللذين هم في عمر ٦٠ سنة وأكثر نسبة ٢٥,٥% (٥١/٢٠٠). نسبة الذكور إلى الإناث كانت مقاربة لـ ١:٢ (١٣٥ ذكر و ٦٥ أنثى). شكلت التآكلات والالتهابات المعدية-الأتني عشرية وقرحة الأتني عشري الأسباب الرئيسية للنزف بنسب ٤٢,٥% و ٣٠,٥% على التوالي. شكل النزف الفعال من قرحة الأتني عشري نسبة ٣٦,١% (٢٢/٦١) ومن التآكلات المعدية-الأتني عشرية نسبة ١٦,٥%

(١٤/٨٥) وهو فرق مهم من الناحية الإحصائية ($p=0,008$). ارتبط استعمال الأدوية المضادة للالتهابات الغير ستيرويدية بنسبة ٩% (١٨/٢٠٠) من الحالات. **الاستنتاج:** في العينة التي تمت دراستها في مدينة الموصل تبين بأن متوسط عمر النازفين من أعلى القناة الهضمية هو أصغر نسبيا من مثيله في الدول الغربية بينما نسبة النازفين الذكور إلى الإناث كانت متقاربة وهي ١:٢. شكل النزف نتيجة التآكلات والالتهابات المعدية- الاثني عشرية السبب الرئيسي للنزف الحاد من أعلى القناة الهضمية تلاه في التسلسل النزف من قرحة الاثني عشرية والذي هو السبب الأكثر شيوعا للنزف في معظم الدراسات الغربية. نتائج هذه الدراسة تتسجم أكثر مع نتائج بعض دراسات الدول النامية.

Acute upper gastrointestinal bleeding (AUGIB) is a common medical emergency that results in significant morbidity and mortality⁽¹⁾. It is defined as gastrointestinal blood loss that originates proximal to the ligament of Treitz⁽²⁾. Clinically (AUGIB) manifests as haematemesis and, or melaena and rarely haematochezia with or without haemodynamic compromise⁽³⁾. Endoscopy has a sensitivity of 92% for identification of the site of (AUGIB), with a specificity that approaches 100%⁽⁴⁾, especially if it is done within the first 24 hour of (AUGIB)⁽⁵⁾. The age distribution varies depending on the studied population with significant frequency affecting the elderly population in the west^(6,7). The male:female ratio for (AUGIB) in some European countries and the United States is approximately 2:1^(8,9). In the west, peptic ulcer is the most common cause of (AUGIB), accounting for up to 50% of cases⁽¹⁰⁾. Multiple studies showed variable contribution of gastroduodenal erosions (GDE) to (AUGIB) with a range of (2-20%)^(10,11,12). Exposure to aspirin carries a definite risk of gastroduodenal injury⁽¹³⁾. Some 15-30% of patients exposed to (NSAIDs) develop gastroduodenal ulcers⁽¹⁴⁾, the risk of bleeding increases with older age⁽¹⁵⁾.

There is regional variation regarding the frequency of causes of (AUGIB) depending on the demographic characteristics of the studied population, risk factors of bleeding, timing of the study and pathological classifications. In our region there is paucity of published reports about the epidemiology, demography, causes, and complications of upper gastrointestinal tract lesions.

The aim of this study is to elucidate the demographic features of (AUGIB) in a sample

of 200 patients from Mosul city, identifying its causes, and comparing our results with others.

Patients and methods

This study was conducted in the endoscopy unit of Al-Salam General Hospital in Mosul during the period from April 1999 to January 2009.

All patients presenting with haematemesis and, or melaena were included in this study. Two hundred patients were collected, most of the patients were referred from the casualty department and inpatient wards after receiving proper resuscitation, others were referred from outpatient or private clinics and they were haemodynamically stable. Informed Consent was taken from all patients or their families. Some patients were in a fasting state while others have recently vomited their stomach contents. The following data were obtained from every patient and registered on a usual form of endoscopic examination which included age, gender, date, site of referral, short relevant history and intake of medications. The endoscopic findings were documented on the same form including biopsies of suspicious lesions. The tools of diagnosis were Japanese Olympus GIF endoscope type XP40 (1999) and Olympus endoscope with videoscope GIF SP-20 (2007). All patients underwent endoscopic examination within the first 2-48 hours of admission. Patients with significant bleeding were supported with nasogastric tube suction prior to endoscopy. The diagnosis was based on endoscopic criteria of each lesion. Gastroduodenitis and (GDE) implied the presence of different grades of mucosal congestion and oedema in different patterns with or without visible erosions; such lesions

might be confined to the stomach and or the duodenum. Signs of bleeding included actively bleeding lesion, lesion covered by blood clot, visible blood vessel at ulcer base, and presence of fresh blood or coffee ground material inside the stomach.

Statistical analysis

Data analysis was done by Minitab statistical soft ware program version 13.20. Descriptive statistics were used to describe the mean age of the sample. T-test unpaired two means and Z-two proportion were also applied. Statistical significance was set at 5%.

Results

The patients' age range was 6-92 year. The mean age was around 43 year for males, females, and collectively.

Patients who were 60 year or above formed 25.5% of the group under study. The mean age of patients with (AUGIB) due to (NSAIDs) use was significantly higher than all other patients (57.9 year Vs 42.3 year, $p=0.001$). Male:female ratio (135:65) was ~2:1 (table 1).

Gastroduodenitis and (GDE) constituted 42.5% (85/200) and was the main cause of (AUGIB), followed by (DU) with frequency of 30.5% (61/200) (table 2).

Actively bleeding (DU) formed 36.1% (22/61) while actively bleeding (GDE) formed 16.5% (14/85), with significant difference between both frequencies ($p=0.008$) (table 3).

Six patients of bleeding due to tumours were detected, five cases with adenocarcinoma of the stomach and one case of cancer invading the duodenum. We encountered a 15-year-old female with measles having extensive (GDE). Low dose aspirin and other (NSAIDs) were associated with 9% (18/200) of (AUGIB), erosions were the main lesions in (72.2%, 13/18) while associated duodenal ulcers formed 22.2% of the patients (4/18) and one patient showed no lesion (5.6%, 1/18). Warfarin use was associated with only three patients of (AUGIB). One patient developed (AUGIB) due to gastroduodenitis after oral corticosteroids. Alcohol consumption was associated with (MWT) in one patient and with (GDE) in another.

Table (1): Age and sex distribution of 200 patients with (AUGIB).

Age group (year)	Males	Females
0-9	2	0
10-19	7	7
20-29	22	13
30-39	27	12
40-49	24	4
50-59	19	12
60-69	15	8
70-79	15	7
80-89	4	1
90-99	0	1
Total	135	65

Table (2): Endoscopic findings and frequency of (AUGIB).

Source of bleeding	Number of patients n=200	Frequency %
Gastroduodenitis and (GDE)	85	42.5
Duodenal ulcer	61	30.5 (p=0.001)*
Oesophageal varices	13	6.5
Oesophagitis and oesophageal erosions	13	6.5
Tumours	6	3
Mallory-Weiss tear (MWT)	2	1
Vascular malformations	2	1
Source of Excess bleeding unidentified	3	1.5
Normal endoscopy	15	7.5

* Z-two proportion (compared with frequency of GDE).

Table (3): State of (DU) and (GDE) with their frequencies.

Lesion	Active bleeding	Blood clot	Clean base
(DU) n=61	22(36.1%)	19(31.1%)	20(32.8%)
(GDE) n=85	14 (16.5%)	6 (7%)	65(76.5%)

Discussion

Age

In this study The mean age was 43.7 year with 25.5% of the patients being over 60 year; similar or close results were reported from Kuwait, Turkey, Saudi Arabia, and Pakistan where majority of patients were under 60 year^(12,16-18). In Western studies the mean age was >60 year and those above 60 year made 50-70% of the total⁽¹⁹⁻²¹⁾. In the developed countries the percentage of older patients suffering from (AUGIB) has been increasing rapidly over the last years; the main reasons are the increase in the life expectancy and the increased consumption of many drugs such as (NSAIDs)⁽⁷⁾. In the present study the mean age of those who bled while using low dose aspirin and other (NSAIDs) was significantly higher than the mean age of the rest of the sample (57.9 Vs 42.3 respectively $p = 0.001$), this can be due to the higher prevalence of cardiovascular and rheumatological conditions in the elderly necessitating the use of such drugs. In our locality which is part of a

developing country (AUGIB) afflicts younger age groups which may be explained on the basis of the following risk factors: higher prevalence of H.pylori infection starting from childhood period, increasing rate of smoking in youth, environmental stressors, nutrition, and probably infection by other pathogens.

Gender

The male: female ratio was ~ 2:1 which is similar to the ratio of some European countries and the United States^(8,9). Worldwide male patients have higher prevalence.

Causes of (AUGIB)

The main causes of (AUGIB) are different throughout the world depending on variation in the risk factors present in the studied populations. In this study gastroduodenitis with erosions was the most frequently encountered lesion followed by (DU) making 42.5% and 30.5% respectively. Different studies showed that peptic ulcer disease was the main cause^(10-12,16) (table).

Table: Causes of (AUGIB), a comparative table.

Source of bleeding	Frequency%. Mosul n=200	Frequency%. Kuwait n=215 ⁽¹⁶⁾	Frequency%. Egypt n=11567 ⁽²²⁾	Frequency%. Turkey n=336 ⁽¹²⁾	Frequency%. Malaysia n=1830 ⁽¹¹⁾	Frequency%. West n>1000 ^(4,10)
Peptic ulcer	30.5	61.8 ($P= 0.0001$) [*]	24.9	48.2 ($p= 0.0001$) [*]	64	31-59
Gastroduodenitis with erosions	42.5	6.97 ($p=0.0001$) [*]	41.7	9.3 ($p= 0.0001$) [*]	16.5	2-20
Esophageal varices	6.5	23.7	53.3	22	6.4	5-20
Esophagitis and esophageal erosions	6.5	21.5				1-15
Tumours	3	1.39		3.9	3.6	1-7
Mallory-Weis tear	1	2.3				5-15
Vascular malformations	1	1.86				0-7
Normal endoscopy	7.5				9	8-14
Excess bleeding- no source identified	1.5					

* Compared with results of the present study (Z-two proportion).

Two studies were done in Saudi Arabia and Egypt showed that oesophagogastric varices was the most frequent cause of (AUGIB) ^(17,22). Another five studies from Egypt, Jordan, and Pakistan found that bleeding due to gastroduodenitis and acute gastric mucosal lesions was commoner than bleeding due to peptic ulcer ^(18,22-25). More recent data suggest that the proportion of cases caused by peptic ulcer disease has declined. Peptic ulcers were responsible for only 21% of episodes of (AUGIB) among 7822 patients included in a national, United States database between 1999 and 2001, the most common cause was nonspecific mucosal abnormalities ⁽²⁶⁾. A big epidemiological study was done in Germany which found that the incidence of bleeding peptic ulcer among younger patients is decreasing due to improved medical treatment through eradication of H.pylori infection while such incidence is increasing in the elderly patients due to a higher intake of (NSAIDs)⁽²⁷⁾. Over the last two decades, Mosul physicians are increasingly using H.pylori eradication regimens which may have an impact on lowering the incidence of bleeding (DU). H.pylori infection has been implicated as a risk factor of bleeding from peptic ulcer, whether the same factor is operating in bleeding from erosions is a matter that needs to be confirmed by further studies. (NSAIDs) is an established risk of bleeding from erosions and peptic ulcers. Other types of infection and stress may be operating in bleeding from mucosal erosions but more work is needed to unmask these adverse factors. In the present study bleeding benign gastric ulcer is not encountered, probably due to its low incidence compared to (DU) while in the western series it might account for up to 20% ⁽²⁸⁾.

Actively bleeding (DU) is significantly more common than bleeding erosions (36.1% Vs 16.5% - p=0.008) which might be attributed to more active arterial bleeding from (DU) compared with capillary oozing from erosions. Alcoholism, as a cause of (AUGIB), is rare in the current study due to religious and social restrictions; it is a more frequent cause in the west.

Drugs and (AUGIB)

Despite the limited number of patients with (AUGIB) due to the associated use of low dose aspirin and other (NSAIDs), the study showed that the use of such drugs was mainly associated with bleeding erosions (13/18, 72.2%) compared with duodenal ulcer (4/18, 22.2%). It is well recognized that (NSAIDs) use is associated with an increased risk of gastric or duodenal ulcer; antral erosions are present within 1 to 2 days in virtually all individuals taking (NSAIDs) ^(29,30).

The gastrointestinal tract is the most common site of significant bleeding in patients receiving long-term oral anticoagulant therapy ⁽³¹⁾.

This study has got its own limitations; the studied sample was relatively small over this long period which might be ascribed to security problems making most of the patients shift to other hospitals. The results of this study will be more precise if other city hospitals were involved.

Conclusions

In this sample of 200 patients from Mosul, (AUGIB) afflicted a relatively younger age group which is consistent with the mean age in developing countries, but the sex ratio (male:female 2:1) was similar to studies from western and developed countries. Gastroduodenitis with erosions and (DU) were major causes of (AUGIB) which differs from western studies but coincides with results from some developing countries.

Analytical studies on larger scales are needed to identify the causes of gastroduodenitis with erosions and to explain the rarity of bleeding gastric ulcers.

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