Turk J Gastroenterol 2003; 14 (2): 111-114

The significance of corpus anterior wall ulcers on morbidity and mortality of patients with upper gastrointestinal bleeding

Üst gastrointestinal sistem kanamalı hastalarda mortalite ve morbiditede korpus ön duvar ülserinin önemi

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Background/aims: *Acute upper gastrointestinal bleeding is a common and potentially life-threatening medical emergency. Various factors modulating morbidity and mortality on upper gastrointestinal bleeding have been reported. However, there are no reports on the prognosis of bleeding ulcers on the anterior wall of corpus (on fundus-corpus junction, 10-15 mm from the lesser curvature) bleeding ulcers on the anterior wall of the corpus. Thus, in this trial we tried to investigate the role of bleeding ulcers on the anterior wall of the corpus on acute upper gastrointestinal bleeding mortality and morbidity.* ***Methods:*** *One hundred seventy-seven (63 women and 114 men, mean age 52 years) patients with a clinical diagnosis of upper gastrointestinal bleeding were endoscoped between August 1999 and December 2002. All patients were treated endoscopically, medically or with surgery. The site of the bleeding was noted and compared regarding rebleeding and mortality rates.* ***Results:*** *50% (3/6) of the patients with bleeding ulcers on the anterior wal of the corpus required further surgical procedure or were associated with mortality, but only 7% (12/171) of the patients with bleeding sites other than bleeding ulcers on the anterior wall of the corpus had mortality or required further surgical intervention ($p<0.05$). Recurrent bleeding occurred in 50% (3/6) of our patients with bleeding ulcers on the anterior wall of the corpus during their hospitalization compared to 7.60% (13/171) ($p<0.05$) of patients with bleeding sites other than bleeding ulcers on the anterior wall of the corpus.* ***Conclusions:*** *Bleeding ulcers on the anterior wall of the corpus is indicative of recurrence or persistence of the hemorrhage and of greater mortality. Bleeding from this site needs more aggressive and diligent care.*

Key words: Ulcer gastric, upper gastrointestinal bleeding, mortality

Amaç: Akut üst gastrointestinal sistem kanaması yaygın ve yaşamı tehdit eden bir tıbbi acildir. Akut üst gastrointestinal sistem kanamasın da mortalite ve morbidite üzerinde etkili pek çok faktör bildirilmiştir. Bununla birlikte, korpus ön duvar üzerinde (fundus-korpus bileşiminde, küçük kurvaturdan 10-15 mm uzakta yerleşmiş) kanayan ülserlerin prognozu hakkında bildiri yoktur. Bu çalışmada Akut üst gastrointestinal sistem kanamasının mortalite ve morbiditesi üzerinde korpus ön duvardan kanayan ülserlerin rolü araştırılmıştır. ***Yöntem:*** *Ağustos 1999- Aralık 2002 yılları arasında üst gastrointestinal kanama klinik tanısıyla 177 hastaya (63 kadın ve 114 erkek, ortalama yaş 52 yıl) endoskopi yapıldı. Tüm hastalar endoskopik, medikal veya cerrahi olarak tedavi edildi. Kanama bölgesi not edilerek diğer bölgelerle mortalite ve morbidite yönünden kıyaslandı. Sonuç: Korpus ön duvar ülserlerinden kanaması olan hastaların %50'si (3/6) cerrahi girişim gerektirirken veya mortalite ile ilişkiliyken, diğer bölgelerden kanamaların yalnızca %7.01'(121171)sinde ölüm veya cerrahi girişim gereksinimi oldu ($p<0.05$). Hastanede yatış sırasında tekrar kanama korpus ön duvar ülserlerinde %50(316) izlenirken, diğer bölgelerden olan kanamalarda 7.60% (13/171) oranında izlendi ($p<0.05$).* **Tartışma:** *Korpus ön duvar ülserleri kanamanın tekrarı veya devamlılığının ve daha yüksek mortalitenin bir belirleyicisidir. Bu kısımlardan olan kanamalar daha dikkatli ve yoğun bakıma ihtiyaç gösterirler.*

Anahtar kelimeler: Ülser gastrik, üst gastrointestinal sistem kanaması, mortalite

INTRODUCTION

Acute upper gastrointestinal bleeding (uGIB) is a common and potentially life-threatening medical emergency (1). Although a minority of patients have a poor prognosis, among patients with severe, persistent, or recurrent hemorrhage, the mortality is increased (2). Various factors modulating morbidity and mortality on upper gastrointestinal bleeding have been reported. However,

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Manuscript received: 7.1.2003 **Accepted:** 27.6.2003

there are no reports on the prognosis of bleeding ulcers on the anterior wall of the corpus (on fundus-corpus junction, 10-15 mm from the lesser curvature) bleeding ulcers on the anterior wall of the corpus. Thus, in this trial we tried to investigate the role of bleeding ulcers on the anterior wall of the corpus on acute upper gastrointestinal bleeding mortality and morbidity.

MATERIALS AND METHODS

One hundred and seventy-seven (63 women and 114 men, mean age 52 years) patients with a clinical diagnosis of upper gastrointestinal bleeding were endoscoped between August 1999 and December 2002. All patients admitted to the hospital were seen and assessed by a gastroenterologist. Endoscopy was performed within 24 hr of admission. Oral intake was stopped and vital functions were monitored. Omeprazole (40mg IV), followed by two 40mg doses intravenously every 12 hr were administered. Endoscopic injection therapy was performed for a bleeding peptic ulcer with active arterial hemorrhage or a nonbleeding visible vessel disclosed at emergency endoscopy. Hospitalized patients who required more than five units of packed erythrocytes transfusion or who developed hypotension and/or hypovolemic shock or bleeding due to unsuccessful endoscopic procedures were referred for surgery. Demographic variables, lesion leading to bleeding, and stigmata of recent hemorrhage were noted.

Analysis: Non-parametric and parametric tests were used where applicable. Logistic regression analysis was performed to denote any independent risk factor leading to mortality or morbidity. A p value <0.05 was used to denote statistical significance.

RESULTS

Duodenal ulcer was the main source of bleeding (n=91, 51.42%). Other sources of bleeding on initial endosopy included gastric ulcer (n=50, 28.25%), duodenal and gastric ulcer (n:5, 2.83%), esophagitis (n=6, 3.38%), esophageal ulcer (n:2, 1.13%), malignancy (n=4, 2.26%), Mallory-Weiss tear (n:2, 1.13%), and erosive hemorrhagic gastropathy (n=17, 9.60%). Stigmata of recent hemorrhage was listed as active bleeding-arterial streaming (n=9, 5.09%), spurting or oozing (n=29, 16.39%), visible vessel (n=30, 16.95%), adherent clot (n=13, 7.34%), red spots over the ulcer (n=32, 18.08%) ord clean lesion base (n=64, 36.15%). Therapeutic endoscopy was performed in 29.94% (n=53) and a surgical procedure was performed in 7.34% (n=13). The rate of re-bleeding was 9.03% (n=16) in patients who underwent therapeutic approach. Perioperative mortality was 23.07% (n=3). The mortality rate was 2.82% (n=5), but only 0.55% (n=1) of death were associated with a bleeding ulcer. While three (50%) patients with bleeding ulcers on the anterior wall of the corpus required further surgical procedure or were associated with mortality, only 7% (n=12) of patients with bleeding sites other than bleeding ulcers on the anterior wall of the corpus had mortality or required further surgical intervention ($p<0.05$). Bleeding ulcers on the anterior wall of the corpus had increased mortality rate compared to patients with other gastric lesions and duodenal ulcer (16.66% vs 3.63% and 2.08% respectively, $p>0.05$). When morbidity rates were compared, bleeding ulcers on the anterior wall of the corpus had higher rates than patients with other gastric lesions and duodenal ulcer (33.3% (2/6) vs 5.4% (3/55) and 5.2%(5/96), $p<0.05$). Recurrent bleeding occurred in 50%(3/6) of our patients with bleeding ulcers on the anterior wall of the corpus during their hospitalization compared to others 7.60% (13/171) ($p<0.05$) of patients with bleeding sites other bleeding ulcers on the anterior wall of the corpus. When endoscopic signs and mortality/morbidity were compared, mortality/ morbidity rate was 66.6% in bleeding-arterial streaming, 10.3% in spurting or oozing, 10% in visible vessel, 0% in adherent clot, 6.25% in red spots and, 1.5% in clean lesion base. In bleeding-arterial streaming, mortality and morbidity was significantly increased ($p<0.05$). Endoscopic treatment was successful in 33.3% of active bleeeding, in 85.7% of spurting or oozing and in 91.3% of visible vessel

Table 1. Effect of age and gender on gastrointestinal bleeding mortality and/or morbidity

			Mortality and/or morbidity		
		Total	*n*	*%*	*P*
Parameters					
Age	<60	113	7	6.19	NS
	>60	65	8	12.3	
Gender	Women	63	5	7.93	NS
	Men	115	10	8.69	

Table 2. Effects of various parameters on the prognosis in patients with gastrointestinal bleeding

	Group I		Group I		
	n	%	*n*	*%*	*P*
Parameters					
Deep ulcer	3	20	*2*	1.33	<0.05
Blood in stomach	8	53.3	15	9.25	<0.05
Hemodynamic instability	1	6.66	7	4.32	NS
Concomitant severe disease	6	40	20	12.3	<0.05
Bleeding activity	13	86.6	31	19.1	<0.05

cases. Patients with mortality and morbidity were grouped as I, while group II included patients without mortality and morbidity. In group I, 73.3% of patients had endoscopic management and six had repeat endoscopy, while 25.3% of patients in group II (<0.05) had endoscopic management. Initial hemoglobin levels were similiar between the groups (9.34±2.1SD vs 9.7±2.05SD). Tables I and II summarize the effects of various variables such as gender, age, ulcer penetration, concomitant severe diseases, blood in stomach, bleeding activity (decreased in hemoglobin and/or melena or hematochezia during follow-up) and hypovolemic shock at admission. Endoscopic signs (stigmata of recent hemorrhage), locations, blood in stomach, ulcer depth and bleeding activity have been found to be independent risk factors for mortality or morbidity.

DISCUSSION

Gastrointestinal bleeding accounts for more than 300,000 hospital admissions per year in the United States. Despite modern technology and advanced therapeutic approaches, the mortality rate associated with gastrointestinal bleeding has remained stable at 5% to 12% (3). Our mortality rate was 2.82%. The prognosis of upper gastrointestinal bleeding depends on many factors. The identification of prognostic factors in patients with peptic ulcer bleeding is vital for improving the outcome. Various factors modulating morbidity and mortality on upper gastrointestinal bleeding have been reported such as age (above 60), concomitant severe diseases (4,5), hypovolemic shock at admission (4) and bleeding activity (6), low hematocrit (5, 6), melena or hematochezia, prolonged prothrombin time (6), and recurrent bleeding (5). Hospitalized patients who require more than five units of packed erythrocytes transfusion or who develop hypotension or hypovolemic shock are more likely to need surgery (6). Emergency endoscopy and, possibly, Doppler ultrasound provide relevant prognostic information allowing prospective therapeutic decisions (7). Active bleeding, either spurting or oozing, or a visible vessel have been accepted as a prognostic variable for recurrence or persistence of hemorrhage (4). The size of the ulcer and its penetration have been reported to increase the risk of bleeding and lead to inefficient therapy (8, 9). Moreover, back and upper wall duodenal ulcers are associated with acute bleeding episodes (8) and endoscopic injection therapy has been found to be unsuccessful (9). There are limited studies on the effect of gastric ulcer location on prognosis. In the only study cited, gastric ulcers on the middle/upper thirds of the lesser curvature of the stomach have been reported to be associated with increased risk of acute bleeding (8). In our study age, gender and hypovolemic shock at admission did not affect mortality or morbidity. Bleeding activity, ulcer penetration, presence of blood in stomach and concomitant severe diseases were the predictors of prognosis. However, we did experience increased mortality and/or morbidity with gastric corpus anterior wall ulcers (on fundus-corpus junction, 1-1.5 cm from the lesser curvature) compared to ulcers with other localizations. High incidence of recurrent bleeding episodes of the above lesions may be due to the impaired extensive submucosal capillary network on those regions. Stolman et al. (10) also found that the presence of an uncleared fundal pool of blood on the initial endoscopy was a marker of increased morbidity and mortality. We had observed fundal pool in our patients with bleeding ulcers on the anterior wall of the corpus (50%). Fundal pool was probably related to increased blood loss, bleeding from large vessels and increased penetration and resulted in increased mortality or morbidity.

In conclusion, endoscopic signs (stigmata of recent hemorrhage), lesion location, blood in stomach, ulcer penetration and bleeding activity have been found to be independent risk factors for mortality or morbidity, bleeding ulcers on the anterior wall of the corpus is indicative of recurrence or persistence of the hemorrhage and of greater mortality. Bleeding from the above site needs more aggressive and diligent care.

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