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Causes, Morbidity, and Mortality of Upper Gastrointestinal Bleeding Among Hospitalized Patients

Naseeb-ur-Rehman[1],Salman khan[2], Muhammad Zubair[3], Moeen ul Haq[4], Umar Badshah[5]

[1]Associate Professor, Medicine Bannu Medical College, Bannu, KPK
[2]Associate Professor, DHQ Teaching GMC, DIKHAN, KPK
[3]Assistant Professor, DHQ, Hospital, DI KHAN, KPK
[4]Assistant Professor, DHQ, Teaching GMC, DIKHAN, KPK
[5]Resident Cardiologist, SGTH, Swat, KPK

Corresponding Author:
Salman khan
Email: salmankhn663@gmail.com

Abstract

Background: The most common, potentially fatal emergency that brings patients to the hospital is upper gastrointestinal bleeding/hemorrhage.

Objective: To assess the causes, morbidity, and mortality of upper gastrointestinal bleeding among hospitalized patients

Material and Methods: This descriptive study was carried out at the medical unit of DHQ hospital D I Khan. The duration of the study was six months from January 2023 to June 2023. Upper gastrointestinal endoscopies were carried out for all the enrolled patients by experienced endoscopists, after initial assessment all the patients were hemodynamically stabilized. All the data was collected by using a Proforma designed for this research. The Rockall score for each patient was then obtained using the whole multivariate analysis. SPSS 24.0 was used to analyze the collected data.

Results: In the current research, totally 220 patients were selected. The male patients in our study were 143 (65%) while the female patients were 77 (35%). Based on endoscopy, the commonest cause of upper GI bleeding was esophageal varices in 132 (60%), followed by peptic ulcer in 33 (15%), gastritis in 22 (10%), esophagi is in 20 (9.09%). The overall mortality rate in our study was 13 (5.91%). A significant association was observed between Rockall score and mortality (p=0.001).

Conclusion: Our study concludes that variceal bleeding was the commonest cause of upper gastro-intestinal bleeding. Peptic ulcer was the second most common cause of upper gastro-intestinal bleeding. Our study also shows that Rockall score is a good predictor of outcome in upper GI bleeding patients.

Key words: Causes, morbidity, mortality, upper gastrointestinal bleeding

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Introduction:

Hemorrhage that originates from any location between the oesophagus and the ligament of Treitz is referred to as upper gastrointestinal bleeding[1]. The most common, potentially fatal emergency that brings patients to the hospital is upper gastrointestinal bleeding/haemorrhage (UGIB/UGIH), which has a high rate of patient morbidity and fatality[2]. Variceal and non-variceal bleed are the two primary forms of UGIB, and they vary in terms of treatments and prognosis. A significant side effect of portal hypertension is acute variceal haemorrhage (AVH),
which affects around 30% of cirrhosis patients and is responsible for 80–90% of their bleeding episodes[3]. Research indicates that hepatitis is a primary cause of cirrhosis. Specifically, hepatitis C virus (HCV) accounts for 41–52% of cases, whereas hepatitis B virus (HBV) accounts for 30% of cases[4]and has a death rate of 11–50[2]. Non-variceal upper gastro-intestinal haemorrhage (NVUGIH) is primarily caused by peptic ulcer disease and erosive gastritis. The two main causes of ulcer disease are usage of NSAID and H. pylori infection. The general mortality rate of NVUGIH is approximately 3-14%, which is significantly lower than that of AVH2. UGIB may appear in several forms. While melena, fresh blood in the vomitus (hematemesis) or changed blackish clots, hematochezia and sometimes merely land with iron-deficiency anemia with microscopic fecal bleed loss are the most prevalent symptoms of patients[5,6]. The best course of treatment for the patient at that point in their care is to conduct an endoscopy as soon as feasible. This is a main therapeutic and diagnostic modality that enables the evaluation of the source of UGIB and the implementation of different endoscopic methods to control the bleeding[7]. Upper GI endoscopy

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should be done within 24 hours after a patient's presentation, following current international recommendations, since this seems to be more beneficial in directing additional care and minimizing therequirement for an extended hospital stay[8]. When it comes to the emergency care of patients, endoscopy has been quite important. Although there have been significant advancements in the management of upper gastrointestinal bleeding (UGIB) over the past two decades, such as the introduction of acid suppressive therapy and endoscopic haemostasis, which have reduced the need for surgical interventions, the rate of death remains relatively unchanged at 6 to 13%, as reported in the majority of studies[9]. Several studies confirm that multiple medical conditions, poorly tolerated substantial blood loss, and ensuing complications from the underlying cause account for the majority of fatalities rather than the failure of medicinal or surgical therapies[10]. Many studies have been conducted to shed light on the clinical and endoscopic characteristics of UGIB patients, but there is a dearth of data to assess the variables linked to these patients' death, particularly in our region. Consequently, the purpose of this research was to determine the most frequent causes of UGIB and shed light on a few key variables that raise the morbidity and death rates of patients who come into our hospital.

Materials and Methods:

This descriptive study was carried out at the medical unit of DHQ hospital Deera Ismail Khan. The duration of the study was six months from January 2023 to June 2023. The study approval was taken from the ethical committee of the hospital. A total of 220 patients were enrolled for this research. The inclusion criteria were patients of both the gender in age range of 18-60 years presented with upper gastrointestinal bleeding. The exclusion criteria were the children, patients with other sources of bleeding and patients not willing to participate in our study. All the patients were followed for up to 2 weeks to determine the risk factors associated with increase in mortality and morbidity of the patients. Informed consent was obtained from all the patients enrolled in our research. Upper gastro intestinal endoscopies were carried out for all the enrolled patients by experienced endoscopists after initial all the patients were hemodynamically stabilized.

After endoscopy, all the patients were moved to their primary ward for additional evaluation. All the data was collected by using a proforma designed for this research. The Rockall score for each patient was then obtained using the whole multivariate analysis. One of the several risk analysis systems used to divide individuals who have UGIB into "low, moderate, or high-risk groups" for the purpose of determining their mortality risk is the Rockall system11. Three clinical factors (age, shock, and comorbidity) and two endoscopic factors (diagnosis and significant SRH) make up the parameters of the Rockall scoring system. Based on each patient's unique computed score, it divides patients into three groups: those with a score of less than three are considered low risk, those with a score of three to four are considered moderate risk, and those with a score of four or more are considered high risk12. Following computation, a correlation between the patient's outcome (morbidity and death) and the Rockall score was evaluated. SPSS 24.0 was used to analyze the collected data.

Results:

In the current research, totally 220 patients were selected. The male patients in our study were 143 (65%) while the female patients were 77 (35%). (Figure 1) Based on age wise distribution, 99 (45%) patients were in age group less than 30 years while 121 (55%) patients were between 31-60 years. (Figure 2) Based on clinical profile, 187 (85%) patients had both hematemesis and melena whereas 33 (12·7%) patients had non-specific symptoms. Based on endoscopy, the commonest cause of upper GI bleeding was oesophageal varices in 132 (60%), followed by peptic ulcer in 33 (15%), gastritis in 22 (10%), esophagitis in 20 (9.09%). Based on Rockall score, 39 (17.72%) patients were in Low risk, 126 (57.27%) patients were in moderate risk while 55 (25%) patients were in high risk. The overall mortality rate in our study was 13 (5.91%). (Table 1) A significant association was observed between Rockall score and mortality (p=0.001). A high mortality rate of 8 (3.63%) was observed in high risk group of Rockall score. (Table 2)

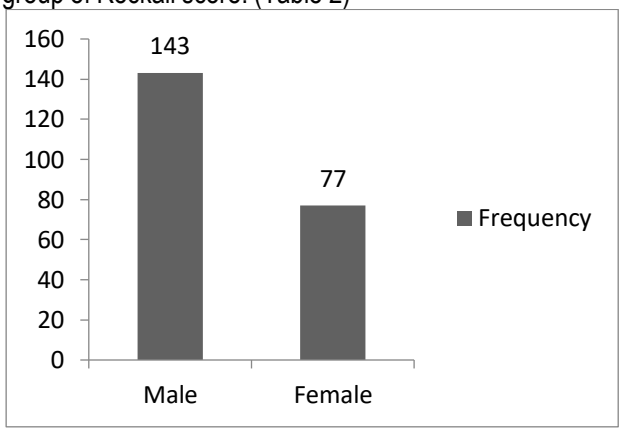

Figure 1: Distribution of patients based on gender

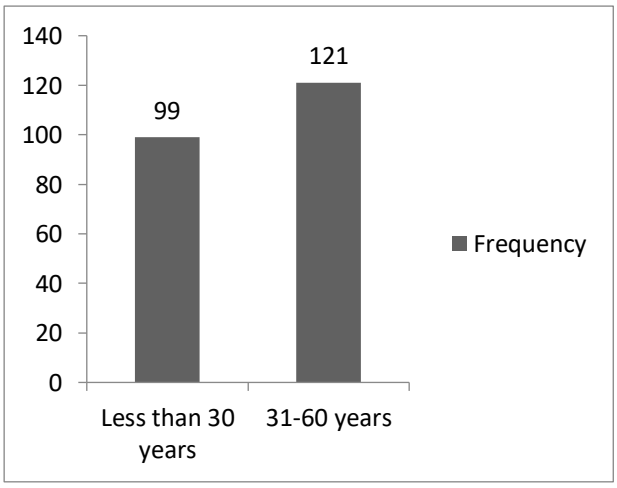

Figure 2: Distribution of patients based on age

Table 1: Causes, morbidity and mortality rate of Upper GI bleeding		
Parameter	**Sub category**	**Frequency (%)**
Clinical profile	**hematemesis and melena**	**187 (85%)**
	non-specific symptoms	**33 (12·7%)**
Endoscopic finding	**oesophageal varices**	**132 (60%)**
	peptic ulcer	**33 (15%)**
	gastritis	**22 (10%)**
	esophagitis	**20 (9.09%)**
	Mallory weiss tears	**4 (1.82%)**
	Oesophageal cancer	**5 (2.27%)**
	Stomach cancer	**4(1.82%)**
Rockall score	**Low risk**	**39 (17.72%)**
	moderate risk	**126 (57.27%)**
	high risk	**55 (25%)**
Mortality	**Yes**	**13 (5.91%).**
	No	**207 (94.09%)**

Table 2: Association of Rockall score with the mortality		
Rockall score	**Mortality (%)**	**P value**
Low risk	**00 (00)**	**0.001**
Moderate risk	**5 (2.27%)**	
High risk	**8 (3.64%)**	
Total	**13 (5.91%)**	

Discussion:

The incidence of upper gastrointestinal bleeding has emerged as a prominent cause for emergency hospital admissions on a global scale13. The condition has significant therapeutic implications within the realm of healthcare due to its persistent high rates of morbidity and death, which have shown no signs of improvement over time. UGIB is attributed to many etiological factors, which exhibit regional variability. In the Eastern region, variceal bleed is recognised as the primary source of upper gastrointestinal bleeding (UGIB), which is a prominent manifestation of portal hypertension14,15 The observed phenomenon might perhaps be attributedto the widespread prevalence of hepatitis within our community, leading to the development of cirrhosis and varices. A previous assessment conducted a few years ago determined the prevalence rates of hepatitis B and C in Pakistan to be 2.4% and 3% correspondingly16. On the other hand, peptic ulcer disease, which is a non-variceal lesion that causes bleeding, has been seen as the predominant cause in Western regions. This condition often arises as a result of secondary infection with H. pylori[13]. Based on statistical data from the United States, it has been observed that over 350,000 individuals are admitted to hospitals each year due to upper gastrointestinal bleeding (UGIB). The fatality rates associated with UGIB range from 5% to 11%[7]. Based on a study, it has been shown that individuals with underlying cirrhosis who have esophageal or fundal variceal bleeding have reported death rates as high as 50%[14], while the mortality rates for non-variceal bleeding have been seen to range from 10-14%[15]. While current data has provided further insights, indicating that the utilization of more potent vasoactive drugs, advancements in endoscopic techniques, and surgical interventions have significantly contributed to the reduction of mortality rates associated with variceal bleeding to approximately 20%7, and non-variceal bleeding to a range of 3.8% to 5.6%[17], it is important to note that these rates still remain relatively high. Therefore, there has been little reduction in the death rate associated with gastrointestinal bleeding during the previous five decades. In the current research, totally 220 patients were selected. The male patients in our study were 143 (65%) while the female patients were 77 (35%). Based on clinical profile, 187 (85%) patients had both hematemesis and melena whereas 33 (12·7%) patients had non-specific symptoms. A research conducted by Anand et al7.in India revealed similarity to the present study with 83.3% of participants being male and 16.6% being female. Furthermore, our research revealed that hematemesis, accompanied by melena, emerged as the prevailing symptom among patients seeking medical attention at the hospital. This data demonstrated a discrepancy with the study conducted by Gregor et al[18]., whereby it was shown that 60% of patients with upper gastrointestinal bleeding (UGIB) presented only with hematemesis upon admission to the hospital. Based on

age wise distribution, 99 (45%) patients were in age group less than 30 years while 121 (55%) patients were between 31-60 years. According to a research conducted by Mahajan et al19 a significant proportion of individuals who had upper gastrointestinal bleeding (UGIB) were found to be older, with a majority of them having co-morbid medical issues. Based on endoscopy, the commonest cause of upper GI bleeding was oesophageal varices in 132 (60%), followed by peptic ulcer in 33 (15%), gastritis in 22 (10%), esophagitis in 20 (9.09%). Our finding aligns with a research conducted in Egypt by Elsebay et al., whereby almost fifty percent of the patients were identified with variceal-induced upper gastrointestinal bleeding20. A research conducted in Nepal likewise identified the same cause among those with upper gastrointestinal bleeding21 Based on Rockall score, 39 (17.72%) patients were in Low risk, 126 (57.27%) patients were in moderate risk while 55 (25%) patients were in high risk. The overall mortality rate in our study was 13 (5.91%). A significant association was observed between Rockall score and mortality (p=0.001). A high mortality rate of 8 (3.63%) was observed in high risk group of Rockall score. Evidence suggests that when the risk score rises, death rises gradually. The findings of our research align with the theoretical framework, since a significant number of fatalities were seen among individuals classified as high-risk, with a cumulative score above 4. This observation is consistent with the findings of Phang et al[22]. who observed a significant patient fatality rate when the Rockall score exceeded 4. A previous study carried out by Naresh Kumar et al. reported similar mortality rate to our study[23].

Conclusion:

Our study concludes that variceal bleeding was the commonest cause of upper gastro-intestinal bleeding. Peptic ulcer was the second most common cause of upper gastro-intestinal bleeding. Our study also shows that Rockall score is a good predictor of outcome in upper GI bleeding patients.

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