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HOSPITAL MORTALITY AMONG PATIENTS PRESENTING WITH NON-VARICEAL UPPER GASTROINTESTINAL BLEED HAVING HIGH ROCKALL SCORE

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Abstract:

Background: *Despite advances in diagnosis and treatment of patients with upper gastrointestinal hemorrhage (UGIH), the in hospitals mortality is very high. One reason is that majority of the hospitals do not stratify the patients into high and low risk for mortality. The aim of the current study was to determine the in hospital mortality in patients presentinting with non variceal upper gastrointestinal bleed having high Rockall score.*

Patients and Methods: *This descriptive Cross sectional study was done   in the department of gastroenterology and hepatology Lady Reading Hospital Peshawar from May 1, 2012 to April 30, 2013.Patients with non variceal upper gastrointestinal bleed having high Rocakall score were recruited in the study. All 143 patients, after admission through OPD and ER, passed through a detailed history, physical examination and investigation. All the patients were followed over next 7 days to detect in hospital mortality.*

Results: *143 subjects were studied over a period of one year. There were +
99 (69.2%) male and 44 (30.8%) female with a male to female ratio of 2.25:1. The mean age of the whole population was 68.4 $\pm$ 15.6. The most frequent symptoms with which the subjects presented was melena (44%), followed by hematemesis (35%).There was increasing frequency of in hospital mortality with increasing score from 4-6. The overall mortality was 44 (30.8%) with the mortality increasing from 19.6 % in score 4 to 50 % in score 6.*

Conclusions: *The frequency of mortality in patients with non variceal bleed increases with increase in Rockall score.*

Key Words: *upper gastrointestinal bleeding, Clinical Rockall score, Risk stratification, Mortality.*

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INTRODUCTION:

Upper gastrointestinal bleeding is one of the commonest causes of gastrointestinal emergencies. The prevalence of upper gastrointestinal bleeding is approximately 170/100,000/year [1]. Non variceal upper gastrointestinal bleeding is the most common cause of upper gastrointestinal bleeding worldwide while in our region varices are the most common cause [2-4]. Peptic ulcer is one of the most common causes of non variceal upper gastrointestinal bleeding [5]. Upper gastrointestinal bleeding presents in the form of haematemesis (the vomiting of blood), malaena (the passage of black tarry stools per rectum) and rarely hematochezia (the passage of fresh blood or clots per rectum) [6]. About 80% of the patients stops bleeding spontaneously in those with non variceal upper gastrointestinal bleeding[6]. The overall mortality from non variceal upper gastrointestinal bleeding is 5-10% [3,7].

An assessment of clinical severity is the first critical task, as it helps in triage and planning of treatment. Different scoring systems have been developed to assess the clinical severity of the condition. These scoring systems can be used to triage the patients to the required level of care. There are two types of scoring systems, those that use only clinical variables (Blatchford score, admission Rockall score and artificial neural network score) and those that use endoscopy in addition to clinical variables (complete/post endoscopy Rockall score). Rockall risk assessment score, the most widely used one, is developed to determine the risk of rebleeding and death from an episode of non variceal upper gastrointestinal bleeding. The Blatchford score uses non endoscopic variables such as blood pressure, blood urea nitrogen level, hemoglobin, heart rate, sncopy, melena, liver disease and heart failure to assess the need for clinical intervention (blood transfusion, endoscopy and surgery) [8]. The artificial neural network uses non endoscopic clinical variables to predict presence of stigmata of recent hemorrhage at endoscopy and thus the need for therapeutic endoscopy [9]. Admission Rockall score of four and above carries > 24% mortality [10].

The rationale behind doing this study was to determine the frequency of in hospital mortality among patients with non variceal upper gastrointestinal bleed having high clinical Rockall score at admission.There are many studies on patients with low Rockall score but but little is known in patients with high clinical Rockall score.Clinical Rockall score is a very easy measure and is calculated immediately at admission and there is no need of doing any endoscopy.

The objective of this study was to determine the frequency of in-hospital mortality among patients with non variceal upper gastrointestinal bleeding having high admission Rockall score.

Table 1.Clinical Rockall score

score	0	1	2	3
age	<60	60-79	$\geq$80	
Vital signs	No shoch	Tachycardia HR > 100	Hypotension SBP < 100	
Comorbidities	none		Cardiac failure/ischemic disease/other conditions	Liver, renal failure, and advanced malignancy

MATERIALS AND METHODS:

A Descriptive Cross sectional study was conducted in the Department of Gastroenterology and Hepatology, Lady Reading Hospital Peshawar from May 1,2012 to April 30,2013. Patients with non variceal upper gastrointestinal bleed having high Rocakall score were recruited in the study. All 143 patients, after admission through OPD and ER, passed through a detailed history, physical examination and investigation.All the patients were managed as per ward and gastroenterology protocols. All the patients were followed over next 7 days to detect in hospital mortality under supervision of a single expert gastroenterologist.

All patients were subjected to detailed history and clinical examination followed by routine investigations which also included serum creatinine, serum bilirubin, INR and serum sodium concentration.All the data was recorded on predesighned proforma.All the patients were managed as per ward and gastroenterology protocols and were followed over next 7 days to detect in hospital mortality.All patients aged more than 15 years with upper gastrointestinal bleed on initial assessment and with Rockall score 4 and above were

included.Patients with acute myocardial infarction,trauma,stroke,variceal bleed on endoscopy,cause not identified on endoscopy and those who developed bleeding during hospital stay for other reasons were excluded from this study.

The data was analysed by using Statistical package for social sciences version 14 (SPSS14) Mean $\pm$Standard Deviation was calculated for Quantitative variables such as age of the patients and Rockall score.Frequency and Percentages were calculated for categorical variables like gender and in hospital mortality.

RESULTS:

143 subjects were identified with non variceal upper gastrointestinal bleeding. All the subjects had a Rockall score $\geq$ 4. There were 99 (69.2%) male and 44 (30.8%) female with a male to female ratio of 2.25:1. The mean age of the whole population was 68.4 $\pm$ 15.6 with a minimum age of 20 and maximum 93.

Among the subjects studied, 45 (31.5%) were aged less than 60, 58 (40.6%) were aged 60-79 and the remainder 40 (28%) were aged $\geq$ 80.At the time of presentation 27 (18.9%) subjects were having no shock, 49 (34.3%) were having tachycardia while 67 (46.9%) were having hypotention. Comorbidities were present in 140 (97.9%) of the patients.

The most frequent symptoms with which the subjects presented was melena (44%), followd by

hematemesis (35%) and hematemesis/melena (15.3%).Only 4.89% subjects presented with hematochezia. All the subjects underwent OGD. 80 (55.9%) had OGD done in less than 24 hours while the remaining 63 (44%) had OGD after 24 hours. Only 3 subjects had OGD within 12 hours.

The health care resources utilized were length of hospital stay, admission to ICU and intravenous proton pump inhibitors.11 (7.7%) subjects were having length of hospital stay >7.Only 9(6.29%) subjects were admitted to ICU. I/V PPI were given to 122 (85.31%) subjects. There was increasing trend of health care resource utilization with the increase in Rockall score from 4-6. In our study, we cannot comment reliably on those having Rochall score 7 because the subjects were just 4 in number.

The main adverse outcomes were blood transfusios, re-ogd, surgery and mortality within 7 days. Blood was transfused to 98(68.5%) subjects. 7(4.9%) had RE-OGD, 6(4.2%) underwent surgery. The overall mortality was 44(30.8%). Just like health care resources utilization, adverse outcomes were increasing with the increase in Rockall score from 4-6.

In hospital mortality was stratified among age, gender, shock, comorbidities etc to see the effect modifiers. At the end, the observed mortality was compared with the predicted mortality according to Rockall score.

Table-2: Rockall score variables

Variable	Rockall Score			
	4	5	6	7
No shock	21(34.4%)	6(11.1%)	0(0%)	0(0%)
Tachycardia	25(40.9%)	18(33.3%)	6(25%)	0(0%)
Hypotention	15(24.5%)	30(55.5%)	18(75%)	4(100%)
Comorbidity	58(95%)	54(100%)	24(100%)	4(100%)
Age <60	23(37.7%)	22(40.7%)	0(0%)	0(0%)
Age 60-79	26(42.6%)	20(37%)	12(50%)	0(0%)
Age >80	12(19.6%)	12(22.2%)	12(50%)	4(100%)

Table-3: Frequency of in hospital mortality

In hospital Mortality	Rockall Score			
	4	5	6	7
	12(19.6%)	16(29.6%)	12(50%)	4(100%)

Table-4: Predicted versus observed mortality

Rockall score	Predicted mortality %	Observed mortality %
4	24.6	19.7
5	39.6	29.6
6	49	50
7	50	100

DISCUSSION:

Upper gastrointestinal hemorrhage (UGIH) is one of the most common and expensive life-threatening GI emergencies, accounting for 300,000 to 350,000 hospital admissions annually. Despite the frequency of UGIH and its tremendous economic impact on the healthcare system, guidelines for providing quality medical treatment in a cost-effective environment are not well established. In most of the cases patients with upper gastrointestinal bleeding are admitted into general medical ward without any stratification into high and low risk. Thus the high risk patients can suffer from adverse outcomes (mortality) due to delay in proper resuscitation, diagnosis and treatment e.g urgent endoscopic therapy for high risk patients.

The Rockall scoring system has been validated, in several studies, for predicting rebleeding and mortality. Most of these studies have used complete Rockall score and also the studies have been conducted on adverse outcomes in low risk patients. (Rockall et al 1996; Vreeburg et al 1999; Dulai et al 2002; Sanders et al 2002; Gralnek&Dulai 2004) [10-12]. Tham et al 2006 used only the admission (clinical) Rockall score for adverse outcomes in patients with non vriceal upper gastrointestinal bleed [13].

Our study included consecutive adult population with male predominance as in most other studies (Rockall et al 1996, Vreeburg et al 1999) [10,11]. In this study, we observed that a high clinical Rockall score is associated with more adverse outcomes. These findings cannot be extrapolated to those with variceal bleeding as our study did not include such patients.

We observed that the length of hospital stay (LOHS) was related to the clinical Rockall scores; the higher the score, the longer the hospital stay. This is because those with high Rockall score are sicker with more comorbid diseases. The use of I/V PPI also increased

with increasing Rockall score in similar fashion. The number of patients admitted to ICU was low in Rockall score 4 and 5 (3.27% and 1.85% respectively) which was because of limited beds in ICU.

The adverse outcomes (e.g blood transfusion, Re-OGD, surgery and mortality) increased with the increasing Rockall score. None of the subjects in Rockall score 7 had Re-OGD. This was because of their early mortality. Also none of them having Rockall score 7 underwent surgery. This was because they were not fit for surgery due to their old age and comorbid diseases.

We didnot calculate the complete Rockall score as the OGD was delayed more than 24 hours in many patients. Because of this delay in OGD some of the diagnosis may be missed e.g Mallory-Weiss tear. We wanted to determine whether the management of such patients by clinicians who based their decisions on clinical risk had an effect on adverse outcome.

CONCLUSIONS:

We conclude that the risk scoring system developed by Rockall et al is a clinically useful tool for stratifying patients with acute non variceal upper gastrointestinal bleeding into high and low risk for mortality. Thus the patients with high rockall score with high risk of mortality can be admitted directly to the ICU or monitored bed.

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