

# Medical Doctors Practice regarding the Upper Gastrointestinal Bleeding Management at Mohammed Salih Edris Bleeding Center

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## Abstract:-

**Background:** There are established guidelines for the acute management of patients presenting to the hospital with upper gastrointestinal bleeding. Adherence to these guidelines is inconsistent and few studies have addressed this issue and the aim of this study to assess the practice of medical doctors toward upper gastrointestinal bleeding management.

**Methods:** This is a facility based cross sectional study. The study was conducted at Mohammed Salih Edris Bleeding Center in Ibn Sina Teaching Hospital at Khartoum State during the period from May to September 2017. The study sample included 100 medical doctors and total coverage of the study population was done. Data was collected using a questionnaire filled by doctors.

**Results:** Specific protocols for upper GIT bleeding management in the studied hospitals was reported by 88(88%) of the doctors. In basic practice the most common protocol used by the doctors was hospital protocol 33(33%) and the least common used 3(3%) senior instruction with British protocol. Offer of urgent endoscope for hemodynamically unstable patients with severe upper GIT bleeding was done by 38(38%). Other 62(62%) did not do this process at immediately; of the later 31(50%) offer urgent endoscope within 24 hours. On the other hand routine performance of endoscope for hemodynamically stable upper GIT bleeding patients was done by 52(52%) of the doctors within 24 hours

**Conclusion:** The medical doctors in the studied hospital had moderate knowledge and applied indigenous protocols as well as international protocols for upper gastrointestinal bleeding management.

**Keywords:-** Khartoum, Upper GIT Bleeding, Practice, Management.

## I. INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is a bleeding source proximal to the ligament of Treitz, It is the most common acute GIT emergency and can potentially lead to serious haemodynamic compromise and mortality. <sup>[1, 2, 3]</sup>. Upper endoscopy is the diagnostic modality of choice for acute upper GI bleeding and often the treatment of choice as well <sup>[4]</sup>. Aggressive resuscitation and stabilization should be started before endoscopic treatment to minimize treatment-associated complications. Blood transfusion to hemoglobin above 7-8 gm/dL for patients without severe co-morbidities and above 10 gm/dL for patients with severe co-morbidities, correction of coagulopathy (if INR>1.5) and thrombocytopenia (if platelet<50 000/mL) should be initiated. Empirical treatment with a loading intravenous (IV) dose of a proton pump inhibitor (PPI) followed by an IV drip has been shown to be beneficial <sup>[5]</sup>. NICE guidelines foreboded platelet transfusion to patients who are not actively bleeding and are hemodynamically stable. (Consensus of guideline committee), offering platelet transfusion to patients who are actively bleeding and have a platelet count of < 50 x 10<sup>9</sup> /L should be done. (Consensus of guideline committee), fresh frozen plasma administration to patients who have either: ° A fibrinogen level of < 1 g/L or ° A prothrombin time (international normalized ratio) or activated partial thromboplastin time > 1.5 times normal (Consensus of guideline committee). In the management of patients with bleeding peptic ulcers, acid suppression after endoscopic hemostasis reduces rates of further bleeding and interventions. In managing patients with variceal bleeding, early administration of vasoactive drugs lowers splanchnic blood flow, promotes hemostasis, and makes subsequent endoscopic treatment easier. Survey of the past medical history can be very helpful during workup of the potential cause of hemorrhage. For example, a history of abdominal aortic aneurysm or previous aortic surgery may prompt the

need of a CT scan to assess possible aortoenteric fistula formation [6].

The use of IV erythromycin (approximately 3 mg/kg) prior to endoscopy is helpful to empty the stomach of large amount of blood for better endoscopic visualization although it is not routinely recommended for all upper GI bleeding cases. Empirical use of octreotide or similar agents should be considered in cases highly suspicious of variceal bleeding but it is not routinely recommended for non-variceal bleeding even though it may have some beneficial effect [7]. Intravenous infusion of erythromycin (250 mg approximately 30 min before endoscopy) improves the diagnostic yield and decrease the need for repeat endoscopy. However, erythromycin has not consistently been shown to improve clinical outcomes. (Conditional recommendation, moderate-quality evidence) [8].

NICE guidelines recommended use of the Blatchford score at first assessment, and the full Rockall score after endoscopy for all patients with acute UGIB. (Priority recommendation, low- to very-low-quality evidence) also Considered early discharge for patients with a pre-endoscopy Blatchford score of 0. (Priority recommendation, low- to very-low quality evidence).

ACG guidelines supported Risk assessment performance to stratify patients into higher-risk and lower-risk categories, and it may assist in initial decisions such as timing of endoscopy, time of discharge, and level of care. (Conditional recommendation, low-quality evidence).

NICE guidelines recommended offering endoscopy to unstable patients with severe, acute upper GIT bleeding immediately after resuscitation. (Priority recommendation, consensus of the guideline committee), also offering endoscopy within 24 hours of admission to all other patients with UGIB. (Priority recommendation). ASGE guidelines recommended endoscopy to diagnose the etiology of acute UGIB. (Moderate-quality evidence) The timing of endoscopy should depend on clinical factors. Urgent endoscopy (within 24 h of presentation) is recommended for patients with a history of malignancy or cirrhosis, presentation with hematemesis, and signs of hypovolemia (including hypotension, tachycardia, and shock) and a hemoglobin < 8 g/dL. ACG guidelines stated that; patients with UGIB should generally undergo endoscopy within 24 hours of admission, following resuscitative efforts to optimize hemodynamic parameters and other medical problems. (Conditional recommendation, low-quality evidence) In patients who are hemodynamically stable and without serious comorbidities, endoscopy should be performed as soon as possible in a no emergent setting to identify the substantial proportion of patients with low-risk endoscopic findings who can be safely discharged. (Conditional recommendation, moderate-quality evidence), in patients with higher-risk clinical features (eg, tachycardia, hypotension, bloody emesis, or nasogastric aspirate in hospital) endoscopy within 12 hours may be considered to potentially improve clinical outcomes. (Conditional recommendation, low-quality evidence) [8].

Nasogastric or orogastric lavage is not required in patients with UGIB for diagnosis, prognosis, visualization, or therapeutic effect according to ACG guidelines. (Conditional recommendation, low-quality evidence). Usage of prokinetic agents in patients with a high probability of having fresh blood or a clot in the stomach when undergoing endoscopy (Low-quality evidence) [8].

## II. MATERIALS AND METHODS

### *Study Design and sample size:*

A descriptive Cross-sectional hospital based study at Mohammed Salih Edris Bleeding Center in Ibn Sina Teaching Hospital. The hospital had specialized department for management of GIT bleeding (Bleeding Center) specially patients with upper GIT bleeding mostly due to esophageal varices, which was a tertiary referral hospital located near the center of Khartoum, the capital of Sudan. All physicians with different level had working in the Mohammed Salih Edris Bleeding Center and others health professional were excluded.

Total coverage of all the study population in the study area had been performed and collected through several questions asked to doctors, the independent variables were socio-demographic characteristics of the respondents (age, gender, working Status (, protocol of use, Risk Assessment Scores usage, initial resuscitation, blood transfusion patterns of practice, medical management , sengestaken tube usage patterns and endoscopy process details.

### *Data analysis:*

The data were entered and proceed using Microsoft office excel version 2013. Descriptive frequency table, cross tabulation and Chi-Square test were analyzed and interpreted using Statistical Package for Social Sciences (SPSS) version 23 software computer package.

### *Ethical considerations*

Ethical approval obtained from ethics committee in the Graduate College, Medical and Health Studies Board – University of Medical Sciences & Technology, Khartoum state ministry of health research department, also from hospital's administration. Informed consent obtained from all medical doctors voluntary participating in the study.

## III. RESULTS

The overall response, half of the doctors 50% aged between 30-39 years, and 13% aged between 40-50 years. Male doctors were 43% and females were 57%. About 76% of the studied doctors were living in Khartoum State, 12% in Omdurman, 6% in Bahri and 6% were found to be living outside Khartoum state. In addition the distribution of physician showed, medical officers were 24%, registrars were 56%, and specialists were 10% and consultants 10%.

Specific protocols for upper GIT bleeding management in the studied hospitals was reported by 88% of the doctors. In basic practice the 45% followed senior instructions, 69% followed hospital protocol, 34% applied the British guidelines and 9% followed American guidelines in their practice of management.

About 55% of the doctors in this study heard about Blatchford Risk Assessment Score, and 34.5% of them used this scale in routine basis. On the other hand the doctors heard about Rockhal Risk Assessment Score were 64% and 35% of them used this scale.

According to studied doctors fluid of choice in initial resuscitation for upper GIT bleeding was normal saline in 94% of doctors, Ringer lactate and Hartman solution in (34%) of doctors and Dextrose in (3%) of doctors.

The indication of blood transfusion for upper GIT bleeding were Hemoglobin level less than 7 mg/dl in 54% of doctors, Hemoglobin level less than 8 mg/dl in 40% of doctors and Hemoglobin level less than 9 mg/dl in 6% of doctors, 3 doctors mentioned acute bleeding as additional indication of transfusion. None of the doctors routinely prescribed platelets. The routine target of hemoglobin by process of blood transfusion were 7 mg/dl in 11% of doctors, 8 mg/dl in 62% of doctors, 9 mg/dl in 4% of doctors and 10 mg/dl in 23% of doctors. Moreover, all doctors did not routinely transfuse hemodynamically stable patients with platelets. **Table 1**

About 3% ,59% and 32% of the studied doctors mentioned that the indications that require platelet transfusion in their practice for upper GIT bleeding were Platelet level less than  $100 \times 10^9/L$ , Platelet level less than  $50 \times 10^9/L$  and Platelet level less than  $20 \times 10^9/L$  respectively. 6% of doctors mentioned symptomatic decrease in PH as indication of platelets transfusion. On the other hand 97% of doctors indicated admission of fresh frozen plasma in cases of increased INR and 3% of doctors mentioned Fibrinogen  $< 1g/L$  as an indication. **Table 2**

Majority of the studied doctors, 91% was routinely prescribed proton pump inhibitors as acid suppression drug, 4% was prescribed H<sub>2</sub> receptor antagonists and proton pump inhibitor and 9% don't prescribed acid suppression drugs routinely. About 91% was routinely prescribed terliprassin for suspected visceral bleeding for upper GIT patients, 9% don't prescribe drugs for suspected variceal bleeding and no one prescribed oceritide. Also 59.3% was prescribed it immediately after definitive hemostatis, 37.4% after three days and 3.3% after five days following definitive homeostasis. **Table 2**

The routinely prescribed 3<sup>rd</sup> generation cephalosporin as prophylactic antibiotic for suspected or confirmed upper GIT bleeding were 86% and 14% were not prescribing prophylactic antibiotics. Offer of urgent endoscope for hemodynamically unstable patients with severe upper GIT bleeding was done by 38%. Other 62% did not do this process immediately; of the later (35.5) offer urgent

endoscope within 12 hours, 50% within 24 hours and 14.5% within 48 hrs. On the other hand routine performance of endoscope for hemodynamically stable upper GIT bleeding patients was done by 39% of the doctors within 12 hours, 52% within 24 hrs. and 9% within 48 hrs. **Table 3**

In addition, 81% mentioned that the indication for use of Sengstaken tube for patients of upper GIT suspected to variceal bleeding was the failure of medical management to control bleeding, 6% indicated Sengstaken tube for every suspected variceal bleeding and 9% do not routinely used it. **Table 4**

Routine evacuation of stomach content before fixation of the Sengstaken tube was 37% of the studied doctors and prescription of human albumin 20% and for upper GIT bleeding patients with renal impairment was 45% of the doctors.

Lactulose administration for patients of upper GIT bleeding with liver cirrhosis was the done by 68% of the doctors, Enema administration was done by 42%, Intravenous Glucose Fluids by 63% and Oral antibiotics by 41%. For the upper GIT bleeding patients with hepatic encephalopathy Lactulose administered by 94.0%, Enema administered by 65%, Intravenous Glucose Fluids administered by 68.0% and Oral antibiotics by 41.0% of doctors. About 79.0% of doctors were prescribing enema in daily basis, 12.0% administered enema day after day and 3.0% prescribing it once a week and 6% of the doctors were prescribing enema according to the number of motions. All the consultants and specialists (n=20) did not routinely prescribed Prokinetic agents such as Erythromycin and Metoclopramide in the endoscopy process for the patients of upper GIT bleeding. **Table 4**

#### IV. DISCUSSION

Upper gastrointestinal bleeding is the most common acute GIT emergency and can potentially lead to serious haemodynamic compromise and mortality. It is characterized by hematemesis, melena, and hematochezia in case of very massive and brisk bleeding and might result in hemodynamic compromise and shock [1, 2]. They are often caused by major hemorrhage from ulcers, varices, Dieulafoy lesions, Mallory-Weiss tears and neoplasms. Rare causes include hemobilia and hemosuccus pancreaticus as well as enteric fistula connecting with major blood vessels. [3] Several international guidelines have been developed to promote safe risk stratification and timely management of patients at the emergency department.

Specific protocols for upper GIT bleeding management in the studied hospitals was provided to (88%) of the doctors. In basic practice the most common protocol used by the doctors was hospital protocol (69%), and the least common used American guidelines. This indicates the studied doctors followed indigenous protocols set by the hospital in addition they used other International Protocol to make follow updates' of upper GIT bleeding management protocols.

Knowledge of doctors in our study found to be moderate where (55%) of the studied doctors heard about Blatchford Risk Assessment Score, unfortunately the less than half of them (34.5%) used this scale in routine basis. The same applicable to knowledge of doctors and use of Rockhole Risk Assessment Score, these scores is highly beneficial in determining high and low risk patients, play a major role in identification of the type of intervention needed and affect the decision of patient discharge, disusing these scores affect the process of sorting out patients and therefore the clinical decision and outcome<sup>[8]</sup>.

Previous studies showed that, Guidelines for clinical practice are valuable source for health care providers as they provide high value interpretation of the best available evidence based medical literature to guide appropriate treatment interventions<sup>[9]</sup>. Developments of guidelines or clinical care pathways have been shown to improve care for patients presenting with upper gastrointestinal bleeding<sup>[10]</sup>. In addition, adherence to these guidelines can lead to cost effective and high quality patient care. The practice and implementation of established guidelines at the patient level continues to lag behind research and ideal standard of care based on recommendations of expert panels. While medical knowledge continues to grow and leads to improved evidence based medicine with the development of new guidelines, it might not translate to improved patient outcome if multidisciplinary healthcare providers such as emergency room physicians, internists, intensivists and subspecialty physicians and nurses are not adherent or adequately trained on providing care consistent with the new guidelines.

Hemoglobin level target was 8 mg/dl for (62%) of doctors in the process of blood transfusion, this practice is incompatible with recommendation of the guidelines were as the Hemoglobin target was 7mg/dl, were as majority of doctors restricted to the guidelines and followed the platelets level less than 50,00 as indication of platelet transfusion<sup>[8]</sup>.

Vast majority of doctors indicated increased INR for fresh frozen plasma transfusion, were as only 3% indicated fibrinogen level less than 1g/dl as indication this because of unavailability of the investigation in the bleeding center. According to above mentioned description, this study shows that there are some gaps in the practice of upper gastrointestinal bleeding management which can lead to incomplete care and some adverse consequences.

In practice, this study revealed that vast majority of the studied doctors following the guidelines in pharmacological management of upper GIT bleeding as they routinely prescribing proton pump inhibitors as acid suppression drug, terliprassin for suspected visceral bleeding patients and prophylactic antibiotics for different cases of upper GIT bleeding<sup>[8]</sup>.

Our study showed that offer of urgent endoscope for hemodynamically unstable patients with severe upper GIT bleeding was done by only one third of doctors (38%), and minority of them (35%) following the guidelines by

performing endoscopy within 12 hours, the rest of doctors delay endoscopy for more than 12 hours, which expose the life of patients to real danger and increases the mortality rate. On the other hand routine performance of endoscope for hemodynamically stable upper GIT bleeding patients was according to the guidelines and done by (91%) of the doctors within 24 hours<sup>[8]</sup>.

Routine evacuation of stomach content before fixation of the sengestaken tube was done by (37%) of the studied doctors, this practice is not required as part of the upper GIT bleeding management and it is committed by minority of the study population, and vast majority of doctors indicated sengestaken tube usage only after failure of medical treatment with vasopressors whereas guidelines did not state a clear direction of usage of sengestaken tube in relation to the response of patient to medical management<sup>[8]</sup>.

Prokinetic agents usage is recommended by the guidelines in non varicoceal bleeding cases due to its beneficial effect in the field viewing and localization of the bleeding source, our study specialists and consultants were not considering prokinetic agent usage as part of the endoscopy process where if it is used, it can facilitate the process of diagnosis and management of non varicoceal bleeding and minimize the chance of repetition of the endoscopy procedure and improve the clinical outcomes<sup>[8]</sup>.

Previous studies showed that implementing clinical guidelines into practice has been a challenge facing medical community. Approaches used to disseminate knowledge and increase adherence to guidelines included peer review journals, didactic sessions, seminars, outreach visits and organizational protocols. However, despite these efforts, there continues to be a wide gap between clinical practice guidelines and how physicians actually practice in real life<sup>[11]</sup>. Factors believed to be contributing to the poor adherence of clinical practice guidelines include healthcare provider's knowledge, behavior, attitudes, organizational and system barriers<sup>[12]</sup>.

Ringer lactate and Hartman solution are the fluids of choice in patient's resuscitation according to the guidelines, usage of normal saline in resuscitation expose the patients to the risk of hyperchloremic acidosis, vast majority (94%) of doctors use normal saline in initial resuscitation of upper GIT bleeding patients and minority (34%) of them use Ringer lactate and Hartman solution which is more safe in avoiding hyperchloremic acidosis.<sup>[13]</sup>

## V. CONCLUSIONS

The medical doctors in the studied hospital had moderate knowledge and applied indigenous protocols as well as international protocols for upper gastrointestinal bleeding management, still some gaps were found regarding applications of certain items of treatment such as endoscope.

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**Table 1:** Showing the distribution of the doctors according to blood transfusion indications and Routine platelets transfusion in upper GIT bleeding patients

Variable	Number	%
<b>Indication of blood transfusion</b>		
Hemoglobin level less than 7 mg/dl	54	54
Hemoglobin level less than 8 mg/dl	40	40
Hemoglobin level less than 9 mg/dl	6	6
Acute bleeding	3	3
<b>Routine target by process of blood transfusion</b>		
Patient blood transfusion until Hb reached 7 mg/dl	11	11
Patient blood transfusion until Hb reached 8 mg/dl	62	62
Patient blood transfusion until Hb reached 9 mg/dl	4	4
Patient blood transfusion until Hb reached 10 mg/dl	23	23
<b>Routine platelets transfusion for stable patients</b>		
No	100	100

**Table 2:** Showing the distribution of the doctors according to the indications of platelet transfusion and routinely prescribed drugs for suspected visceral bleeding

Variable	Number	%
<b>Indication of platelet transfusion</b>		
Platelet level less than $100 \times 10^9/L$	3	3
Platelet level less than $50 \times 10^9/L$	59	59
Platelet level less than $20 \times 10^9/L$	32	32
Symptomatic decreased pH	6	6
<b>Indication for administration of fresh frozen plasma</b>		
Increased INR	97	97
Fibrinogen < 1g/L	3	3
<b>Routinely prescribed drugs for suspected variceal bleeding</b>		
Terlipressin	91	91
Don't prescribe drugs for suspected variceal bleeding	9	9
<b>Stoppage of medical management</b>		
Immediately after definitive hemostasis	54	59.3
Three days after definitive hemostasis	34	37.4
Five days after definitive hemostasis	3	3.3

**Table 3:** Showing the distribution of the doctors according to routinely prescribed prophylactic antibiotics and offer of endoscope for GIT bleeding patients

Variable	Number	%
<b>Routinely prescribed prophylactic antibiotics</b>		
No	14	14
<b>Offer urgent endoscope for thermodynamically unstable patients</b>		
Yes, 3rd cephalosporin	86	86
Yes	38	38
No	62	62
<b>Timing of endoscopy for unstable patient</b>		
Within 12 hrs	22	35.5
Within 24 hrs	31	50
Within 48 hrs	9	14.5
<b>Timing of endoscopy for stable patient</b>		
Within 12 hrs	39	39
Within 24 hrs	52	52
Within 48 hrs	9	9

**Table 4:** Showing the distribution of the doctors according to indication for use of Sengstaken tube and routinely administrated agent for patients with upper GIT bleeding

Variable	Number	%
<b>Indication for use of Sengstaken tube</b>		
For every suspected variceal bleeding	6	6
Failure of medical management to control bleeding	81	81
Both	4	4
Not routinely used it	9	9
<b>Administered agent with liver cirrhosis</b>		
For every suspected variceal bleeding	42	42
Lactulose	68	68
Intravenous Glucose Fluids	63	63
Oral antibiotics	47	47
<b>Administered agent with Hepatic encephalopathy</b>		
Enema	65	65
Lactulose	94	94
Intravenous Glucose Fluids	68	68
Oral antibiotics	41	41
<b>Frequency of enema prescription</b>		
Daily	79	79
Day after day	12	12
According to number of motion	6	6
Every week	3	3
<b>Prokinetic agent prescription</b>		
Yes	20	100