



## Value of Nasogastric Tube in Emergency Upper Gastrointestinal Bleeding in Zagazig University Hospitals

### KEYWORDS

UGIB, Nasogastric lavage and oesophageal varices.

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**ABSTRACT** *Background : Acute upper gastrointestinal bleeding (UGIB) is a common medical emergency with an annual rate of 150-200 hospitalization per 100.000 populations and a 5-10% mortality rate. A nasogastric (NG) lavage may be performed as the first diagnostic procedure since a bloody aspirate confirms the source of bleeding as being proximal to the pylorus.*

*Aim of the work : The aim of this work is to study the value of gastric lavage by nasogastric tube (NGT) before upper gastrointestinal endoscopy for patients with emergency UGIB.*

*Subjects and Methods : Out of 650 patients presented with haematemesis and/or melena, 148 patients (38 females and 110 males) had completed the study, they were divided into NGT group which included 74 patients and non-NGT group which included 74 patients. According to patients clinical history and laboratory findings; patients who were suspected to have esophageal varices (OV) received either the standard treatment of care or the local practice treatment of OV and those who were not suspected to have OV received either the standard treatment of care or the local practice treatment of peptic ulcer disease. According to the endoscopic finding our patients were rearranged in retrograde manner into two groups: OV group which included 88 patients (44 patients with NGT and 44 patients without NGT) in each group 32 patients received the standard treatment of care and the other 12 patients received local practice treatment. Peptic ulcer group which included 60 patients (30 patients with NGT and 30 patients without NGT) in each group 15 patients received the standard treatment of care and the other 15 patients received local practice treatment.*

*Results : There was a statistical significant difference between OV group of patients with and without NGT as regards both the time lapsed from admission to endoscopic procedure ( $P < 0.03$ ) and the outcome of medical care ( $P < 0.001$ ). Considering some clinical parameters in peptic ulcer group there was no statistical significant differences between patients.*

*Conclusion and Recommendation : Patients with NGT were associated with clear endoscopic field with less rebleeding and encephalopathy but unfortunately they had longer time before endoscopy and longer stay in ER. After all we recommend use of NGT shortly before endoscopy for diagnosis of UGIB and clearing the field of vision.*

### INTRODUCTION

UGIB is defined as bleeding proximal to the ligament of Treitz. The presentation may be acute with haematemesis and/or melena or chronic with iron deficiency anemia [1]. American Society of Gastrointestinal Endoscopy (ASGE) suggests that an early upper endoscopy for patients with UGIB allows for localization and diagnosis of the source of bleeding, risk stratification of recurrence, based on the appearance of the lesions and potential therapy [2].

### Aim of the Work :

The aim of this work is to study the value of gastric lavage by nasogastric tube (NGT) before upper gastrointestinal endoscopy for patients with emergency UGIB.

### SUBJECTS AND METHODS

This study had been conducted in the gastroenterology emergency unit, Internal Medicine Department, Faculty of Medicine, Zagazig University Hospitals in the period from April 2012 to January 2013.

Out of 650 patients presented with haematemesis and/or melena, 148 patients (38 females and 110 males) had com-

pleted the study, they were divided into NGT group which included 74 patients and non-NGT group which included 74 patients.

All patients were subjected to thorough history taking, complete physical examination, laboratory investigation including (Complete blood count, liver function tests, kidney function tests and prothrombin time (PT), abdominal ultrasound, electrocardiogram (ECG) and NGT insertion for patients included in NGT group and diagnostic EGD was done within 24 hours.

According to patients clinical history and laboratory findings; patients who were suspected to have OV received either the standard treatment of care or the local practice treatment of OV and those who were not suspected to have OV received either the standard treatment of care or the local practice treatment of peptic ulcer disease.

According to the endoscopic finding our patients were rearranged in retrograde manner into two groups: OV group which included 88 patients (44 patients with NGT; 32 patients (20 patients were unstable and 12 patients were sta-

ble) received the standard treatment of care and 12 stable patients received local practice treatment and 44 patients without NGT; 32 patients (20 patients were unstable and 12 patients were stable) received the standard treatment of care and 12 stable patients received local practice treatment} and peptic ulcer group which included 60 patients (30 patients with NGT; 15 patients received the standard treatment of care and 15 patients received local practice treatment and 30 patients without NGT; 15 patients received the standard treatment of care and 15 patients received local practice treatment).

N.B.: Patient is considered unstable if pulse >100 beat/min and systolic blood pressure <100 mmHg [3].

N.B.: Line of treatment in unstable patients was the standard treatment of care.

**Exclusion criteria:**

Refusal to participate, Prisoners, recent myocardial infarction <3 months, hemorrhagic or ischemic stroke <3 months, decompensated congestive heart failure, severe respiratory failure, Patients with severe mental illness precluding the ability to obtain informed consent, ongoing anticoagulation which can not be reversed secondary to patient safety and/or strongly suspected gastrointestinal perforation [4].

**The treatment of variceal bleeding according to:**

- a) Standard of care guidelines (This will be applied for all either stable or unstable patients): Nothing per oral (NPO), IV crystalloids or colloids, Blood transfusion aiming at hemoglobin (8-10 g/dl), Correction of clotting abnormalities, Terlipressin 1-2 mg bolus then 2 mg/4 hrs for 48 hours or somatostatin 250 mg/hr or 3 mg/12 hrs for three to five days, vitamin K/Fresh Frozen Plasma (FFP) (if INR > 1.3), third generation cephalosporin or quinolones and EGD within 24 hours [5].
- b) Local practice treatment: The same as standard care of treatment without vasopressors to decrease the cost.

**The treatment of peptic ulcer according to:**

- a) Standard of care guidelines : NPO, IVF crystalloids or colloids, Blood transfusion aiming at hemoglobin (8-10 g/dl), Proton pump inhibitors (PPI) high dose and continuous infusion dose 80 mg IV bolus then 8 mg/IV/hr considered pre-endoscopy to downstage the endoscopic lesion and decrease the need for endoscopic intervention. Continue for 72 hrs PPI treatment post-endoscopy, Endoscopy within 24 hrs, Endoscopic haemostatic therapy is by (Adrenaline + Clips/thermal) [5].
- b) Local practice treatment: The same as the standard treatment but IV PPI was given for 24 hrs until EGD was done followed by oral PPI to decrease the cost.

**NGT insertion [6].**

After successful proper sized NGT insertion, gastric wash was done with 1-2 liters of tap water. Color of aspirate was

recorded as clear, bloody or bilious colored. EGD was performed after good stabilization of the patients and in absence of any contraindication for the procedure using video endoscopic system (Pentax FG 29W) [7].

**Statistical analysis:**

Data were checked, entered and analyzed by using (SPSS version 19). Data were expressed as mean ±SD for quantitative variables, number and percentage for categorical variables. ANOVA (F test) and chi-square (X<sup>2</sup>), paired t test and validation of the test were done. P<0.05 was considered statistically significant.

**RESULTS**

**Table (1): Distribution of patients in the studied groups.**

Types	N = 148	%
OV		
NGT		
Standard practice		
Unstable	20	13.5
Stable	12	8.1
Local practice		
Stable	12	8.1
No NGT		
Standard practice		
Unstable	20	13.5
Stable	12	8.1
Local practice		
Stable	12	8.1
Peptic ulcer		
With NGT		
Local	15	10.1
Standard	15	10.1
No NGT		
Local	15	10.1
Standard	15	10.1

**Table (2): Demographic data of patients in OV group.**

Variables	With NGT N = 44		Without NGT N = 44		t	P
	No	%	No	%		
Age					0.16	0.87
X±SD	55.4±11.8		55.8±8.7			
Range	30-83		41-78			
Gender	No	%	No	%	X <sup>2</sup>	P
Male	35	79.5	35	79.5	0.0	1.0
Female	9	20.5	9	20.5		

**Table (3): Duration before endoscopy, endoscopic field clarity and post-endoscopic follow up in OV group.**

Variables	With NGT		Without NGT		F	P
	Unstable N = 20	Stable N = 24	Unstable N = 20	Stable N = 24		
Duration before endoscopy (hrs)					3.09	0.03*
X±SD	15.1±5.1	13.8±5	15.1±5.5	11.7±4.4		
Range	8-24	8-24	6-24	6-24		

	No	%	No	%	No	%	No	%	X2	
Endoscopic field										
No blood	7	35.0	11	45.8	6	30.0	14	58.3		
Altered blood	5	25	8	33.3	9	45	5	20.8	6.79	0.34
Fresh blood	8	40.0	5	20.8	5	25	5	20.8		
Rebleeding										
Yes	3	15.0	3	12.5	4	20.0	3	12.5	0.63	0.88
Encephalopathy.										
Yes	0	0.0	0	0.0	1	5.0	0	0.0	3.44	0.32
Outcome after endoscopy										
Prolonged stay in E room>3days	14	70	9	37.5	9	45.0	3	12.5		
Transfer to ward	6	30	15	62.5	11	55.0	21	87.5	15.36	0.001**

**Table (4): Duration before endoscopy, endoscopic field clarity and post-endoscopic follow up in stable patients of OV group.**

Variables	With NGT				Without NGT				F	P
	With vasopressors N = 12		Without vasopressors N = 12		With vasopressors N = 12		Without vasopressors N = 12			
Duration before endoscopy (hrs)										
`X±SD	15.75±5.5		15.9±4.7		13.3±5.3		10.2±2.7		3.82	0.016*
Range	10-24		8-24		6-24		6-14			
Endoscopic field	No	%	No	%	No	%	No	%	X2	
No blood	6	50.0	5	41.7	7	58.3	7	58.3	10.18	0.11
Altered blood	4	33.3	4	33.3	5	41.7	0	0.0		
Fresh blood	2	16.7	3	25.0	0	0.0	5	41.7		
Rebleeding										
Yes	1	8.3	2	16.7	1	8.3	2	16.7	0.76	0.85
Encephalopathy.										
Yes	0	0.0	0	0.0	0	0.0	0	0.0	0.0	1.0
Outcome after endoscopy										
Prolonged stay in E room>3days	5	41.7	4	33.3	1	8.3	2	16.7	4.4	0.21
Transfer to ward	7	58.3	8	66.7	11	91.7	10	83.3		

**Table (5): Peptic ulcer group (with NGT vs without NGT).**

Variables	With NGT				Without NGT				F	P
	Local N = 15		Standard N = 15		Local N = 15		Standard N = 15			
Duration before endoscopy (hrs)										
`X±SD	14±6.9		14.1±4.4		13.6±6.4		14.5±5.4		0.06	0.9
Range	3-24		8-24		6-24		8-24			
Endoscopic field	No	%	No	%	No	%	No	%	X2	
No blood	11	73.3	10	66.7	6	40.0	10	66.7	6.11	0.41
Altered blood	2	13.3	3	20.0	5	33.3	1	6.7		
Fresh blood	2	13.3	2	13.3	4	26.7	4	26.7		
Post endoscopic follow up										

Pulse						
X±SD	97.7±10.8	81.3±9.1	80.2±7.3	78.3±7.2		
Range	56-95	70-95	65-91	70-90	0.29	0.82
SBP						
X±SD	110.3±7.7	110±7.5	112±13.7	111.3±7.4		
Range	100-120	100-120	90-140	100-120	0.14	0.93
DBP						
X±SD	69.3±8.8	72±10.1	74±10.5	72.7±8.8		
Range	50-80	50-80	60-100	50-80	0.62	0.6

## DISCUSSION

There is a great debate about the use of NGT in acute UGIB. Our study aimed at trying to solve this problem.

Our patients were matched as regard to age and gender in OV group (with or without NGT) (Table 2).

Considering the duration before endoscopy in OV subgroups; our study revealed that the duration was longer in unstable patients, because time was required to supply patients with blood, or colloids, to restore normal hemodynamics, and vasopressors to control bleeding. The endoscopic field was more clear in stable subgroup (with and without NGT), than that in unstable subgroup (with and without NGT). Barkun et al. [8] showed that normalization of blood pressure, restoration of hemoglobin concentration, initiation of correction of any coagulopathy, or thrombocytopenia, and administration of vasoactive medication, provide low risk endoscopic findings in stable patients, as well improved outcome of those with high risk endoscopic findings, and good endoscopic field view.

Post endoscopic follow up in OV subgroups with and without NGT, showed no statistically significant difference in the occurrence of rebleeding or encephalopathy, but there was a statistically significant difference as regard to outcome after 24 hours post endoscopy. More patients without NGT were discharged from emergency room to the ward compared to those with NGT in table (3), this may be due to epistaxis, gastric erosion and sinusitis which complicated NGT insertion [9].

There was match between subgroups with and without NGT and with and without vasopressors regarding the endoscopic field clarity but there was a statistically significant difference in the duration before endoscopy. The duration was shorter in patients without NGT than those with NGT. This may be due to late presentation or ineffective wash in patients with NGT as in table (4). Leung [10] stated that the small lumen of standard nasogastric tubes and their ability to clear gastric blood is questionable and complications of NGT which include epistaxis, sore throat, esophageal perforation and gastric erosions [4]. The duration was shorter also in those taking vasopressors; this may be due to their action by producing splanchnic vasoconstriction

and reducing portal venous inflow [11].

Patients were matched in the subgroups with and without NGT and vasopressors in respect to rebleeding, encephalopathy and outcome with no significant statistical difference as shown in table (4). Rebleeding was higher in patients who did not take vasopressors. This means that NGT did not make difference in the two subgroups but the most important factor was the vasopressors. Rebleeding may be due the complications of the NGT tube insertion like epistaxis, injury to the oesophagus and stomach. A similar study that was conducted in Canada by Aljebreen et al. [12]. Showed that there was no difference between patients who underwent nasogastric aspiration from those who did not in terms of demographics, hemodynamic parameters or presence of high risky lesions at endoscopy.

Patients in peptic ulcer group with and without NGT were matched in regard to the duration before endoscopy and endoscopic field clarity as shown in table (5). There was no difference between the standard and local practice of treatment and NGT did not make any statistical significant difference although endoscopic field clarity with NGT was better than that without NGT. Many studies assessed the use of proton pump inhibitors (PPI) before endoscopy and considered the use of PPI prior to endoscopy to reduce the proportion of patients with high risk stigmata (active arterial bleeding, non-bleeding visible vessels and adherent clot), and the need for endoscopic therapy [13].

## CONCLUSION AND RECOMMENDATIONS

Patients with NGT were associated with clear endoscopic field and reduction in incidence of rebleeding and encephalopathy but unfortunately there was longer time before endoscopy and longer stay in ER.

Considering use of vasopressors in stable patients, patients without NGT had significant shorter time before endoscopy than those with NGT especially in those without vasopressors, in unstable patients (all received vaso-pressors) NGT showed clear endoscopic field but more encephalopathy and rebleeding but no change in time before endoscopy.

After all we recommend use of NGT shortly before endoscopy for diagnosis of UGIB and clearing the field of vision.

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