

## Research Article

# An 8-year Retrospective Review of Gastrointestinal Medical Emergency Conditions at a Tertiary Health Facility in Nigeria

Oguntoye Oluwatosin Oluwagbenga and Yusuf Musah

MBBS, FWACP(Gastroenterol), Consultant Gastroenterologist, Department of Internal Medicine, Afe Babalola University Ado-Ekiti/Federal Teaching Hospital, Ido-Ekiti, Ekiti State, Nigeria  
MBBS, FMCP (Nigeria), Consultant Gastroenterologist, Department of Internal Medicine, Afe Babalola University Ado-Ekiti/Federal Teaching Hospital, Ido-Ekiti, Ekiti State, Nigeria

### Abstract

**Background:** Globally, gastrointestinal emergency conditions constitute a considerable proportion of the medical emergency cases seen in the emergency room.

**Objective:** This study investigated the spectrum of gastrointestinal medical emergency conditions seen in the emergency room of Federal Teaching Hospital Ido-Ekiti, Nigeria.

**Materials and Methods:** The emergency room admission register was used to obtain the following information: Age, Sex, Diagnosis, Year of admission and the Outcome. The period under review was 1st January 2009 to 31st December 2016. The data was analyzed using the SPSS version 21.0 software package.

**Results:** A total number of 5,912 patients with medical emergency conditions were admitted into the emergency room during the period under review, out of which 813(13.7%) were gastrointestinal medical emergency conditions. The age range of the patients was 15 to 100years with a mean( $\pm$ SD) of  $47.32\pm 18.938$ . Acute exacerbation of acid peptic disorders(29.3%) was the most common indication for emergency room admission followed by acute gastroenteritis(26.8%) and decompensated chronic liver disease(14.3%). Decompensated chronic liver disease and upper gastrointestinal bleeding were the conditions with the highest mortality being 31.8% and 29.5% respectively.

**Conclusion:** Gastrointestinal medical conditions are common indications for emergency admission. Measures should be taken to avoid these preventable conditions in a bid to reduce their morbidity and mortality.

**Keywords:** gastrointestinal, medical, emergency room

Corresponding Author:  
Oguntoye Oluwatosin  
Oluwagbenga; email:  
proflast@yahoo.com

Received 15 December 2017  
Accepted 25 February 2018  
Published 14 March 2018

Production and Hosting by  
Knowledge E

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Editor-in-Chief:  
Prof. Mohammad A. M.  
Ibnouf

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## 1. Introduction

Globally, gastrointestinal emergency conditions constitute a considerable proportion of the medical emergency cases seen in the emergency room of health institutions [1-5].

The gastrointestinal system can be affected by various disease pathological processes which could be infectious, non-infectious or neoplastic in nature and these disease conditions can present as medical or surgical emergencies [6]. Awareness and knowledge of the spectrum of gastrointestinal medical emergency conditions in our environment will help in proper healthcare planning, policy making and provision of the required essential health services in the emergency room to reduce the morbidity and mortality associated with them.

There is paucity of data in the literature as regards the spectrum and incidence of the gastrointestinal medical emergency conditions seen in Nigerian health institutions. This study is aimed at determining the spectrum of the various gastrointestinal medical emergency conditions seen in the emergency room of Federal Teaching Hospital, Ido-Ekiti, Nigeria. It is an eight-year retrospective study of cases seen from 1st January 2009 to 31st December 2016.

## 2. Materials and Methods

### 2.1. Study Location and Data Collection

This is a retrospective study that was carried out at the Emergency Room of Federal Teaching Hospital, Ido-Ekiti, Ekiti state, Nigeria. The hospital is situated in Ido-Osi Local Government Area (LGA) of Ekiti state. Ekiti state is one of the 36 states of the federal republic of Nigeria located in the southwest sub-region with an estimated population of 2,384,212 people, while Ido-Osi LGA, a rural setting, has an estimated population of 159,114 people.

The hospital was established in 1998 as a Federal Medical Centre that provides secondary care services and was later upgraded to the status of a Teaching Hospital in 2015 after being affiliated with Afe Babalola University Ado-Ekiti, Ekiti state for the training of medical and nursing students. The hospital has 179 beds with 18 clinical departments and 73 consultants (specialists). It provides residency training in Internal Medicine, Surgery, Obstetrics and Gynaecology and Paediatrics departments. It provides tertiary care services for people in Ekiti state and adjoining parts of Kwara, Osun, Ondo and Kogi states.

The emergency room admission register was reviewed for the data from 1st January 2009 to 31st December 2016. Age, sex, diagnosis, year of admission and the outcomes were collected.

The inclusion criteria: patients who were admitted into the emergency room of the hospital within the period under review with any gastrointestinal medical emergency condition.

Exclusion criteria: those who were admitted outside the period under review, those with other medical and surgical conditions and those who were brought in dead on arrival.

The data of 813 study subjects was used for the study. Ethical approval was obtained from the Ethics and Research Committee of the institution.

## 2.2. Data Analysis

The data obtained was analyzed using the Statistical Package for the Social Sciences (SPSS) version 21.0 (SPSS Chicago Inc. IL U.S.A). Descriptive statistics used included frequency tables, means and standard deviations.

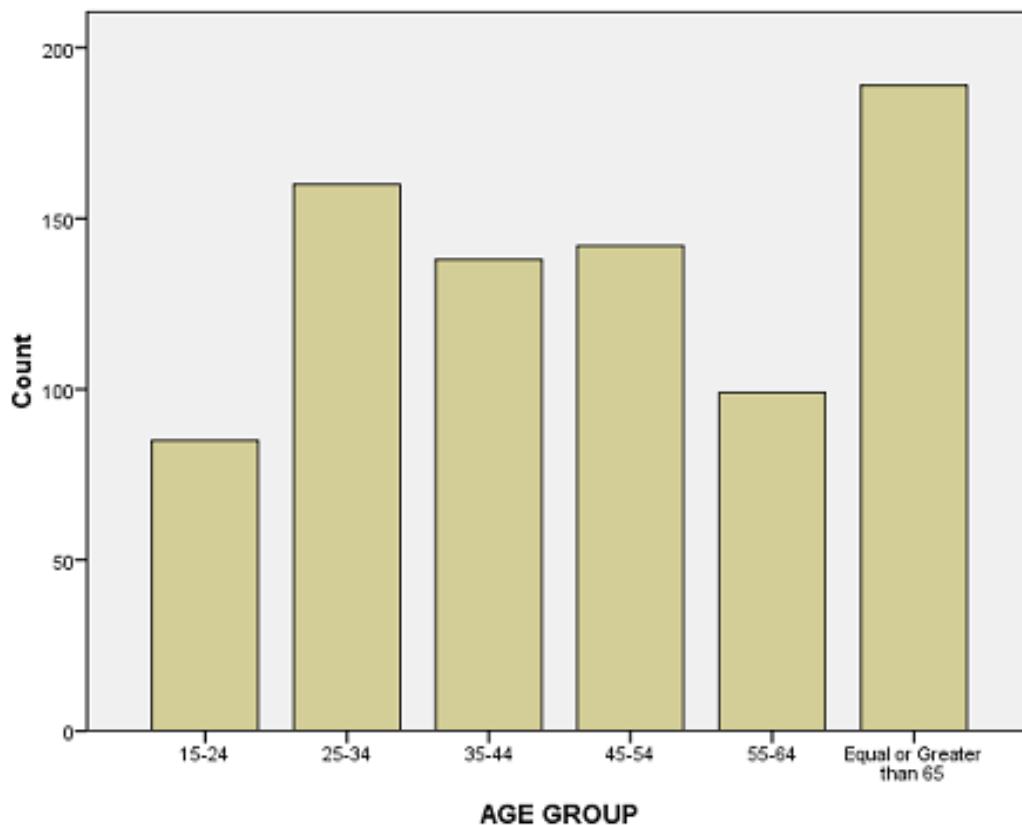
## 3. Results

A total number of 5,912 patients with medical emergency conditions were admitted into the emergency room during the period under review, out of which 813(13.7%) were gastrointestinal medical emergency conditions. They were 442(54.4%) males and 371(45.6%) females with a male to female ratio of 1.2 to 1.

The age range of the patients was 15 to 100 years with a mean ( $\pm$ SD) of 47.32 ( $\pm$ 18.938). The patients aged 65 years and above had the highest number of admissions [189 (23.2%)] while patients aged 15 to 24 years constituted the lowest number of admissions [85 patients(10.5%)] as shown in Figure 1.

Figure 2 depicts the number of gastrointestinal medical emergency conditions admitted annually from 2009 to 2016. The highest number of admissions was in 2012 [160 patients (19.7%)] while the lowest was in 2015 [45 patients (5.5%)] with a mean ( $\pm$ SD) of 101.62 ( $\pm$ 42.775) admissions per year.

Majority of the patients [423 (52.0%)] were subsequently admitted to the medical wards for further care after receiving initial emergency care in the emergency room over a variable period of time usually lasting from a few hours to 48 hours. 303 (37.3%) patients whose conditions resolved after the initial emergency care were discharged

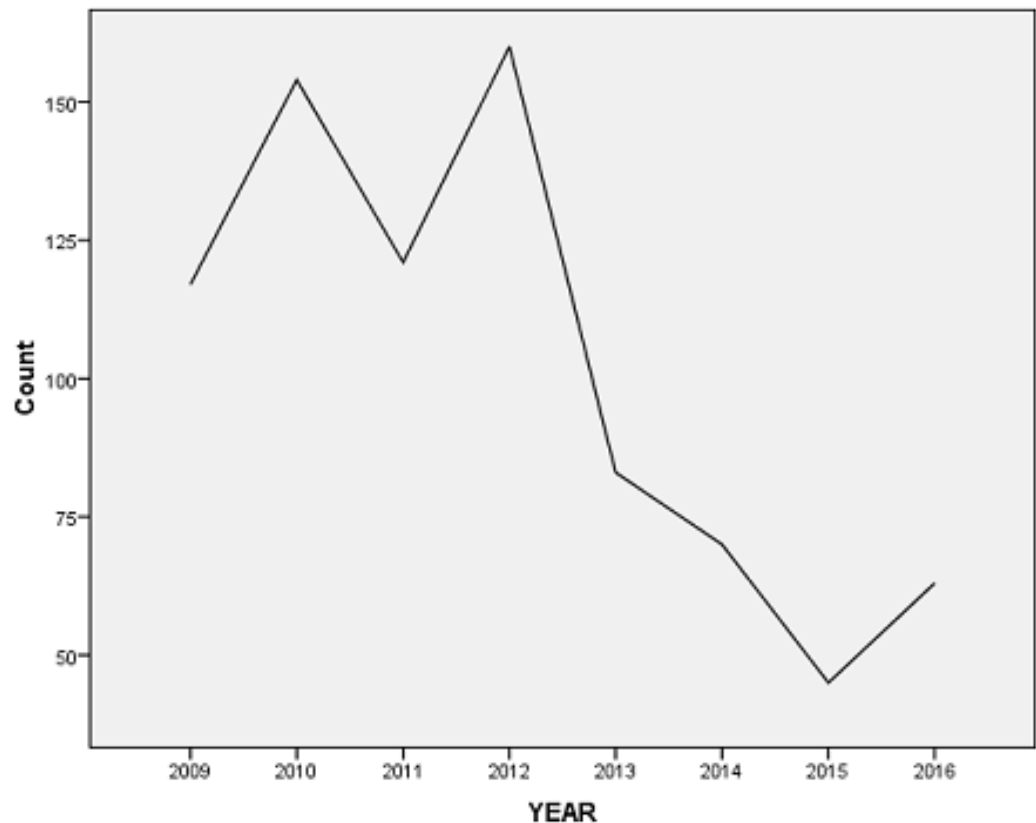


**Figure 1:** Age group distribution of the study population.

from the emergency room to the Gastroenterology and Hepatology specialist clinic for further follow-up.

The five possible outcomes for every patient admitted into our emergency room were ward admission, discharged home, referred to another hospital, discharged against medical advice or death. The outcome from this study is as shown in Table 1. Sixteen (2.0%) patients were referred for various reasons from the emergency room to other tertiary hospitals usually located in an urban community while 27(3.3%) patients discharged themselves against medical advice. The mortality rate in the emergency room from gastrointestinal medical emergency conditions was 5.4%.

Acute exacerbation of acid peptic disorders (29.3%) were the most common indications for emergency room admission. These conditions include acute gastritis from non-steroidal anti-inflammatory drugs (NSAIDS) use or consumption of herbs or toxic substances; peptic ulcer disease (PUD) and gastroesophageal reflux disease (GERD) among others. Majority (52.1%) of these patients were subsequently admitted to the adult medical wards for further care.



**Figure 2:** Annual number of admitted cases from 2009 – 2016.

Acute gastroenteritis was the second most common indication for emergency room admission followed by decompensated chronic liver disease being 26.8% and 14.3% respectively. Hepatic abscess was the least commonly seen condition in this study. Decompensated chronic liver disease and upper gastrointestinal bleeding were the conditions that carried the highest mortality being 31.8% and 29.5% respectively.

#### 4. Discussion

Globally, gastrointestinal emergency conditions constitute a considerable proportion of the medical emergency cases seen in the emergency room of health institutions [1–5]. In this study, elderly patients aged 65 years and above were the most common age population seen; this is reflective of the fact that the hospital is located in a rural environment which is predominantly made up of the elderly. The community is a retirement home for indigenes after many years of service in an urban community.

The total number of gastrointestinal medical emergency admissions in this study was quite low when compared with similar studies [1–3]. This could be due to a number

<b>OUTCOME</b>							
<b>DIAGNOSIS</b>	<b>WARD ADMISSION</b>	<b>DISCHARGED</b>	<b>REFERRED</b>	<b>DAMA</b>	<b>DIED</b>	<b>TOTAL</b>	<b>%</b>
Exacerbation of APD	124	94	4	11	5	238	29.3
UGIB	65	15	2	1	13	96	11.8
Acute Gastroenteritis	72	133	2	8	3	218	26.8
Food Poisoning	2	4	0	1	0	7	0.9
Acute Diarrhoea	8	11	0	1	1	21	2.6
Chronic Diarrhoea	10	3	0	0	0	13	1.6
Dysentery	1	3	0	0	2	6	0.7
Typhoid Fever	14	22	1	1	1	39	4.8
Acute Abdominal Pain	14	6	0	0	0	20	2.5
Abdominal Tuberculosis	4	1	0	0	1	6	0.7
Acute Viral Hepatitis	6	2	0	0	2	10	1.2
Acute Cholecystitis	4	0	0	0	0	4	0.5
Decompensated CLD	85	7	6	4	14	116	14.3
Hepatocellular Carcinoma	13	2	1	0	2	18	2.2
Liver Abscess	1	0	0	0	0	1	0.1
<b>Total</b>	<b>423</b>	<b>303</b>	<b>16</b>	<b>27</b>	<b>44</b>	<b>813</b>	<b>100.0</b>

**KEY:** DAMA: Discharge Against Medical Advice, APD: Acid Peptic Disorders, UGIB: Upper Gastrointestinal Bleeding, CLD: Chronic Liver Disease.

TABLE 1: Diagnosis and Outcome of the patients admitted to the Emergency Room.

of factors which include the fact that the hospital is located in a rural environment which has a small population compared to an urban community. Also, the low educational status of the populace and preference of traditional remedies to orthodox treatment are contributory. The poor socio-economic status of the residents also prevents them from patronizing the hospital considering the cost of services and treatment which they cannot afford. Majority of the residents are self-employed; artisans, farmers and traders and they are not registered under the National Health Insurance Scheme which would have considerably reduced the cost of accessing care in the hospital.

The other factors that discourage high patronage include frequent industrial actions by various professional groups among the health care workers which were quite significant in the year 2015; thus the least number of admissions was recorded in that

year. Also, non-availability of facilities for optimal care of these patients necessitating referral to other tertiary hospitals.

In this study, acute exacerbation of acid peptic disorders was the most common indication for emergency admission (29.3%) but the specific type was not yet ascertained since an upper gastrointestinal endoscopy was not done.

The prevalence of *Helicobacter pylori* infection is high in Nigeria [7]. Jemilohun *et al* reported a prevalence of 64% among patients with dyspepsia in Ibadan, Nigeria [8]. Its prevalence has been documented in the literature to be high in developing countries, and associated with low levels of education, dwelling in a rural environment, low social economic status, and poor sanitation [7]. These risk factors were present in our study population and may explain their high admission rate for acid peptic disorders considering that majority of our patients could be harboring *Helicobacter pylori*.

Various factors could have been responsible for precipitating the acute exacerbations our patients had and these include consumption of herbs which is common practice among rural dwellers, use of non-steroidal anti-inflammatory drugs for relief of musculoskeletal pain which could arise from farming activities and/or rheumatologic conditions such as osteoarthritis which is very common among the elderly. Also many of the elderly patients may have various cardiovascular risk factors necessitating long term Aspirin (75mg) use which is also a risk factor for acute exacerbation among other factors [9].

The mortality from acute exacerbation of acid peptic disorders in this study (11.4%) could have been from complications such as peritonitis as a result of perforated viscus and from upper gastrointestinal haemorrhage.

Ogah *et al* in a 2-year retrospective review of medical admissions at the emergency unit of Federal medical centre, Abeokuta, Nigeria in which a total of 2,377 patients were admitted; 159(6.7%) of them had gastrointestinal medical emergencies out of which 123(77.4%) had Acid peptic disorders making it the commonest indication for admission followed by Chronic liver disease[21 patients(13.2%)]. These findings were similar to what was found in our study.

Decompensated chronic liver disease was the third most common indication for emergency admission in our study; the primary aetiology is likely due to chronic hepatitis B virus infection. Chronic Hepatitis B virus infection is highly prevalent in sub-saharan Africa and south-east Asia with an average prevalence rate of 13.7% in Nigeria (about 23 million Nigerians are HBsAG positive).<sup>10,11</sup> The other common causes of chronic liver disease in Nigeria are alcoholic liver disease, chronic Hepatitis C virus infection, alpha-1-antitrypsin deficiency and non-alcoholic fatty liver disease. The other causes are less common [12].

Features of decompensation include ascites, jaundice, hypoalbuminaemia, coagulopathy, hepatic encephalopathy, hepatorenal syndrome, hepatopulmonary syndrome, portopulmonary hypertension, hepatic hydrothorax, upper gastrointestinal bleeding which could be variceal or non-variceal and malignant transformation to hepatocellular carcinoma among others [12]. These features are poor prognostic indices for the patients and liver transplantation is the only hope of long term survival for them; therefore it is not surprising that decompensated chronic liver disease was the commonest cause of mortality (31.8%) in this study.

Upper gastrointestinal bleeding was the second commonest cause of mortality in this study (29.5%). Upper gastrointestinal bleeding is traditionally defined as bleeding from the gastrointestinal tract that is proximal to the ligament of Treitz [13]. Risk factors include use of NSAIDs, aspirin, alcohol consumption, cigarette smoking, acid peptic disorders and chronic liver disease among others [13–15]. Upper gastrointestinal bleeding is a potentially fatal condition with a mortality rate of 6%–13% in the literature despite advances in critical care monitoring and support [16]. Rukewe et al at the University College Hospital Ibadan, Nigeria reported a mortality rate of 13.6% among patients with upper gastrointestinal bleeding over a 2-year period [13]. The mortality rate from our study was higher.

Discharge Against Medical Advice (DAMA) was a relatively common practice among our study population. This is usually as a result of poverty, illiteracy, low socioeconomic class, preference for traditional remedies. Occasionally it could also be due to lack of the expected clinical improvement or dissatisfaction with the hospital environment. The referral rate of 2.0% from our study could have been as a result of various reasons ranging from non-availability of the required investigative equipment or hospital consumables to lack of space for admission, on-going industrial action by health care workers and patients request for referral among others.

The emergency room mortality rate from gastrointestinal diseases in this study was 5.4% and this could have been due to various factors including late presentation of the patient to the emergency room and inadequate emergency resuscitative facilities including medications. A significant number of patients in this study were managed and discharged from the emergency room (37.3%) without requiring further admission to the wards. This could suggest that such cases were not major and/or that gastrointestinal medical conditions responds well when early and appropriate treatment measures are instituted.



## 5. Limitation

This study was conducted using the Emergency Room admission register which usually contain limited amount of information unlike the case notes of the individual patients which would have provided more detailed clinical information particularly if the patients' medical records are available in an electronic format for easy assessment and would also allow for retrospective review of cases of over a much longer period.

## 6. Conclusion

Acute exacerbation of acid peptic disorders, acute gastroenteritis and decompensated chronic liver disease in that order were the commonest indications for emergency admission. Decompensated chronic liver disease was the commonest cause of mortality. There is therefore a need to enhance public enlightenment about avoidance of the risk factors for these preventable gastrointestinal conditions in a bid to reduce the morbidity and mortality associated with them.

## 7. Acknowledgement

Special thanks to the House Officers and Residents of Internal Medicine Department, Federal Teaching Hospital, Ido-Ekiti, Nigeria for their support towards making this research a success.

## 8. Funding

The authors bore the entire cost of the research and did not receive any financial support from any organization.

## 9. Conflict of interest disclosure

The authors declared no conflicts of interest.

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