



## **DIAGNOSIS AND MANAGEMENT OF BOWEL OBSTRUCTION IN ELDERLY PATIENTS AT THE GENERAL HOSPITAL OF YAOUNDÉ, LAQUINTINIE OF DOUALA AND THE REGIONAL HOSPITAL OF NGAOUNDÉ**

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### **ABSTRACT**

Bowel obstruction is a serious affection characterized by a partial or complete and persistent interruption of the normal flow of luminal content. Bowel obstruction is one of the most frequent emergencies in general surgery, commonly affecting elderly patients, yet resulting with bad prognostics. Consequently, morbidity and mortality from bowel obstruction in elderly patients is high. Though, significant progress has been made in the diagnosis and management of bowel obstruction in recent years, little is known whether this progress has benefitted outcomes in elderly patients in Cameroon regarding morbidity and mortality related to this intestinal obstruction. As such, this design study aims at evaluating the morbidity and mortality of intestinal obstruction in elderly patients. Hence, a descriptive retrospective cross-sectional design study from January 1<sup>st</sup> 2010 to December 31<sup>st</sup> 2015 was carried out in three reference hospitals of Cameroon (General Hospital of Yaoundé (GHY), Laquintinie of Douala (LD) and Regional Hospital of Ngaoundéré (RHN)). Data analyzed from patients records included sociodemographic characteristics, signs and symptoms, operative diagnosis, etiologies treatment and outcome managements. 118 patients constituted our sample size of study amongst which men accounted for 61%

and women 39%, giving a sex ratio of 1.56 in favor of men. The mean age of the study subject was 67.48 years. The obstruction triad symptom of abdominal pain, faces and gas interruption was observed in all the patients. Plain abdominal X-ray was the most practiced diagnostic exam with 65.30% and the etiology the most encountered was strangulated hernia in 31.4% cases. Laparotomy accounted for 89.8% and medical management was marked by intravenous rehydration in 91.5% and abdominal decompression using a nasogastric tube in 43.2%. Post-operative morbidity was dominated by parietal suppurations in 59.43% and sepsis in 24.52%. The mortality rate on the other hand was 27.1% in this study. Hence, intestinal obstruction still remains a serious health problem in our country.

Key words: intestinal, bowel, obstruction, morbidity, mortality, management

## I- INTRODUCTION

The WHO defines an elderly person as one who is 60 years and above [1]. Several pathologies affects the elderly people such as bowel obstruction which is one of the most frequent pathology encountered in the ageing population with a vast clinical entity characterized by a syndrome that constitutes an abdominal pain, nausea and vomiting, feces and gas interruption as well as abdominal distention [2]. It is quite a serious situation for patients in case of late initial management and late diagnosis [3]. Bowel obstruction represents 8 to 10% of abdominal emergencies in elderly patients [4]. Obstructions remains the most frequent emergencies in general surgery and sometimes presented as the most "urgent emergencies" especially when the life of an intestine is threatened [5, 6]. Generally the intestines necrosis in case of late and inefficient management. The evolution and optimization of the management of bowel obstruction has permitted to reduce the global mortality related from 6% to 3% nowadays, meanwhile, during the 20<sup>th</sup> century, the mortality rate was of the order of 60% [3]. The causes of this pathology are numerous and grouped in extrinsic and intrinsic causes. On the other hand, mechanisms are divided in two principal categories: mechanical obstructions (90 to 95%) and functional obstructions [7]. In

view of the particularity of the elderly person, with limited body defense capacities, we asked our self the question to find the morbidity and mortality of bowel obstruction related to elderly patients knowing that much has been done concerning diagnosis and management in recent years to improve this high mortality and morbidity rates. Here is a number of arguments that justify our choice of bowel obstruction in elderly patients: For United Nation Organization, in 2050, 80% of elderly people will live in less developed countries or developing countries as such, every country must prepare its social system and health system so as to cope with this demographic mutation [8]. Elderly people in Cameroon accounts for 5% of the total population [9] whereby the interest for this pathology should be of great importance. Also, the mortality rate remains high (10 to 30%) in Africa and mostly reliable to late consultations and associated metabolic tares [10], whereas no study concerning intestinal obstruction in elderly patients has been carried out in these hospitals.

The general objective we defined for this design study was to evaluate the morbidity and mortality of bowel obstructions in elderly patients and specifically to: 1- determine the sociodemographic characteristics of patients; 2- describe preoperative reanimation procedures; 3- identify existing preoperative comorbidities; 4- establish a relationship between existing comorbidities and the mortality rate.

## **II- METHODOLOGY**

### **1- Study design and setting**

The design study was a retrospective cross-sectional study carried out at the general hospital of Yaoundé, Laquintinie hospital of Douala and the regional hospital of Ngaoundéré going from January 1<sup>st</sup> 2010 to December 31<sup>st</sup> 2015, either a period of 6 years.

## **2- Study subject and method**

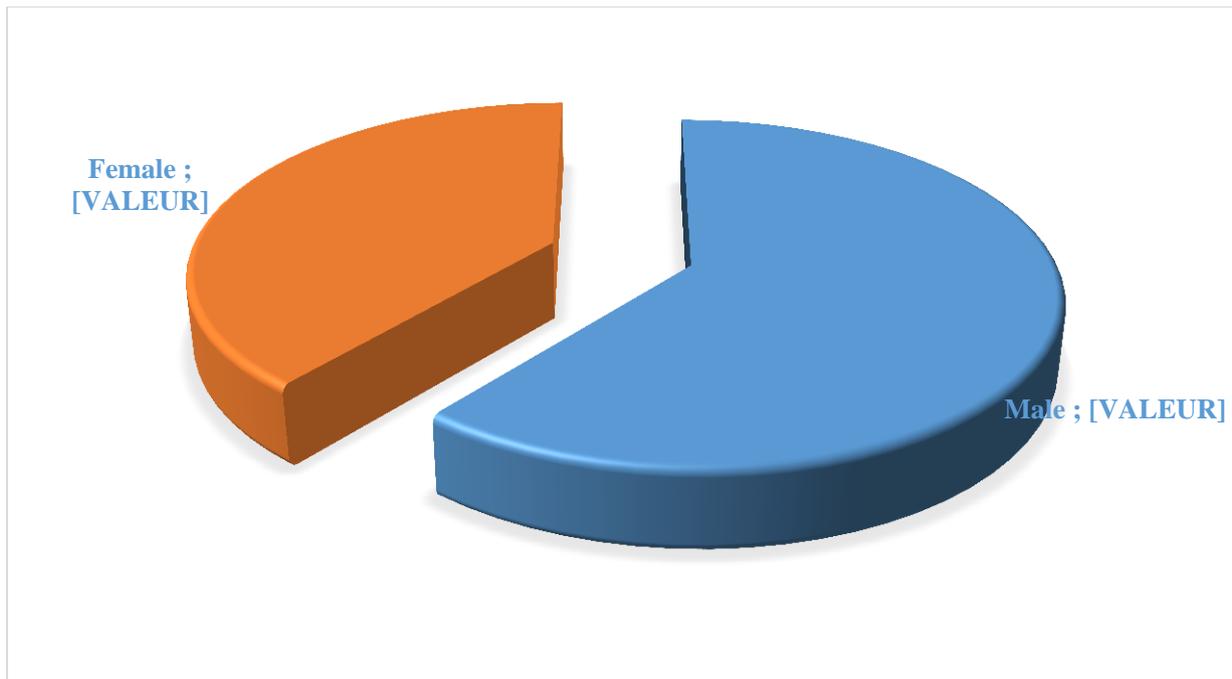
All the available documented patients files who presented to the surgical department of the GHY, LD and RHN with a clinical diagnosis of intestinal obstruction in patients aged 60 years and above confirmed by a plain X-ray radiography and subsequently underwent surgery at these hospitals were included to the study. Patients' files presenting intestinal obstruction with age below 60 years, patients' files presenting sub-occlusions and incomplete medical files were excluded from study. The data retrieved from records of patients' concerned sociodemographic characteristics, obstruction etiologies, diagnostic means, medical and surgical management procedures and resulting complications of care management.

## **3- Statistical data analysis**

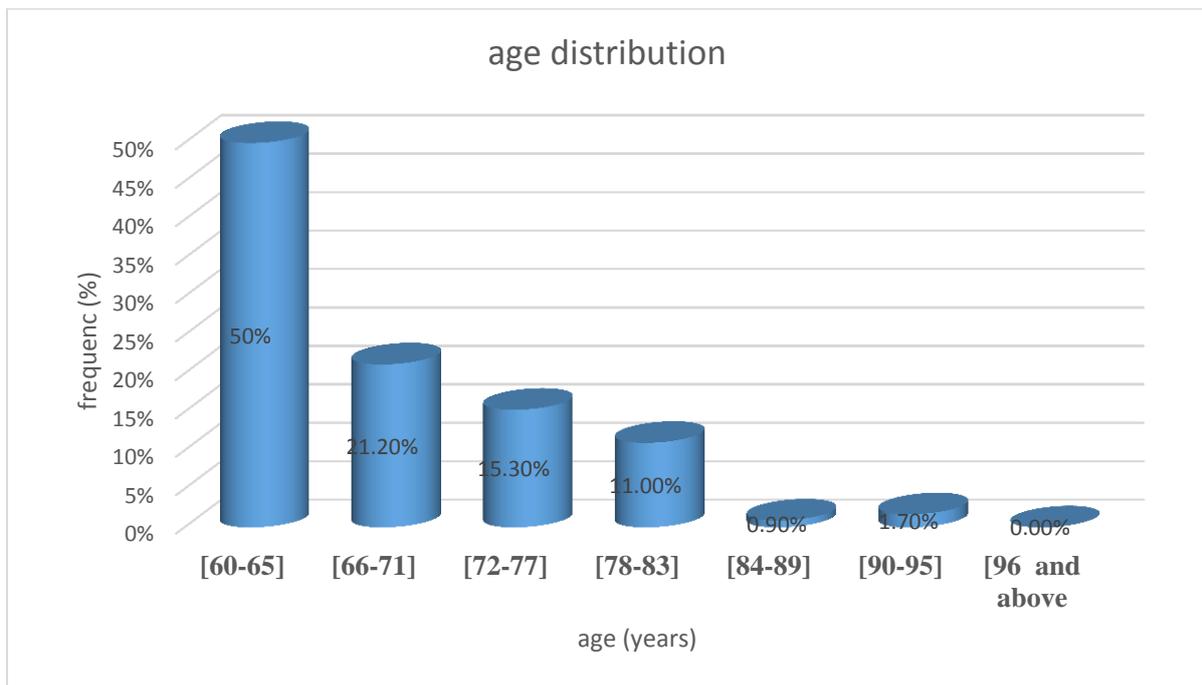
Obtained results were analyzed using the software Sphinx Déclic Version 5 and the rest of the statistical treatment of data by the software Microsoft Office Word and Excel version 2013.

## **III- RESULTS**

Of the 118 patients who were enrolled in the study 61% were male and 39% female with a sex ratio of 1.56 in favor of men (fig1). The ages of patients ranged from 60 to 92 years with a mean age of 67.48 years. The most concerned age with this disease is the range of [60-65] years with a percentage of 50% (fig2).



**Figure 1: sex distribution**



**Figure 2: age distribution of patients**

Comorbidity was reported in 62 (52.5%) patients (mostly hypertension and diabetic with 27.1% of cases), while 56 patients didn't have and associated comorbidity. Details of patient comorbidity is shown in table 1 below.

**Table1: distribution of patients by existing comorbidity**

Comorbidities	Number (n)	Frequency (%)
<b>Hypertension/diabetes</b>	32	27.1%
<b>Digestive pathology</b>	14	11.9%
<b>Neurologic disease</b>	3	2.5%
<b>Cardiac disease</b>	7	5.9%
<b>Prostatitis</b>	10	8.5%
<b>Renal insufficiency</b>	1	0.9%
<b>None</b>	56	47.5%

Preoperative reanimation depending on the clinical findings at consultation and some related comorbidities taking into account certain parameters required for postoperative intensive care follow-up focused on rehydration, therapeutic antibiotics, the put in place of a nasogastric catheter and a sterile Foley catheter are some of the frequent medical acts realized with respective percentages of 91.5%, 87.3%, 65.3% and 43.2%. The preoperative reanimation details is shown in table 2 below.

**Table2: distribution of patients following the type of treatment received before surgery**

Preoperative medical treatment	Number (n)	Frequency (%)
<b>Nasogastric catheter</b>	51	43,2%
<b>Intravenous rehydration</b>	108	91,5%
<b>Antibiotics</b>	103	87,3%
<b>No medication</b>	10	8,5%
<b>Sterile foley catheter</b>	77	65,3%
<b>Transfusion</b>	10	8,5%
<b>Analgesics</b>	14	11,9%
<b>Antispasmodics</b>	13	11,0%
<b>Proton Pump Inhibitors</b>	1	0,9%

Following the distribution of patients regarding comorbidity and mortality rate, there exist no relation between the existence of a comorbidity and mortality as the

Chi-Square value  $\chi^2= 3.58$  and degree of freedom=6; with a p-value  $p=0.73$ . Table 3 below shows the detail of this relation.

**Table3: distribution of patients following comorbidity and mortality**

<b>Mortality</b>	<b>Alive</b>	<b>Dead</b>	<b>Total</b>
<b>Comorbidities</b>			
<b>Hypertension/Diabetes</b>	24	8	32
<b>Digestive pathology</b>	9	5	14
<b>Neurologic disease</b>	3	0	3
<b>Cardiac disease</b>	6	1	7
<b>Prostatitis</b>	8	2	10
<b>None</b>	38	18	56
<b>Others</b>	1	0	1
<b>Total</b>	89	34	123

The outcome of mortality depends on the type of morbidity related to the patient and manifested by the patient after surgery. There exist a significant relationship between post-op morbidity and the overall mortality with  $\chi^2=45.11$ ; degree of freedom =7 and p-value  $p=0.0001$ . Details in table 4 below

**Table 4: distribution of patients following post-op morbidity and mortality**

<b>Mortality and Post-Op morbidity</b>	<b>Patient is alive</b>	<b>Patient is dead</b>	<b>Total</b>
<b>Absence of bowel peristaltics</b>	14	4	18
<b>Parietal suppurations</b>	53	10	63
<b>Digestive fistula</b>	7	4	11
<b>Recurrences</b>	1	0	1
<b>Sepsis</b>	7	19	26
<b>Evisceration</b>	1	0	1
<b>Complications of decubitus</b>	6	1	7
<b>None</b>	25	0	25
<b>Total</b>	114	38	152

#### IV- DISCUSSION

##### 1- Sociodemographic characteristics

###### i- Age

The ages of patients ranged from 60 years to 92 years with a mean age of 67.48 years. The most represented age group was that of [60-65] years with 50%. We noticed in this study from sample population that, the frequency of bowel obstruction decreased with increase in age. Obtained results are similar to that of Arlette Dogmo who found 13.5% of his study subject aged 61 years and above with a maximum age of 82 years [11]. Madiba Sissocko found 12.8% of his subjects aged 61 years and above in a prospective study over a period of one year on obstructive pathologies in elderly patients [12].

###### ii- Sex

In this design study, we noticed a predominance of the male sex with 61% against 39% for the female sex giving a sex ratio of 1.56 in favor of men. Results are similar those of Madiba Sissocko [12] and Arlette Dongmo [11] who obtained equally a male predominance of 69.2% and 64.6% respectively in their studies.

##### 2- Management care processes

###### i- Preoperative healthcare management

This study permitted us to retrieve 91.5% of patients who received as medical care an intravenous rehydration before surgery and 43.2% a nasogastric catheter in place. These obtained results are similar that of Diaz J and al.; [13] who demonstrated in their study that the first medical act in case of a bowel obstruction was to rehydrate the patient by correcting the hydro electrolytic troubles associated with intestinal decompression using a nasogastric catheter.

The evolution of the disease was dominated by hypovolemic choc in 53.4% cases, intestinal perforations in 5.1% with 8.5% death records. This evolution expresses the late consultation of patients that arrive hospital in very bad state.

We equally notice that 89.8% of the patients underwent surgery either 106 patients and 10.2% abstained from surgery. Surgical abstention may be explained by the outcome of death in preoperative either 8.5% or the remaining 1.7% were cases of functional surgery which were not systematically operated.

#### ii- Perioperative care management

Laparotomy was realized in 100% for all patients who underwent surgery. We observed during surgery 26% of healthy intestines, 40% of inflammatory intestines and 34% of intestinal necrosis. Obtained results are different from those of Madiba Sissocko [12] who obtained during study 61.5% of healthy intestines, 10.3% inflammatory intestines and 17.9% of necrosis. This necrosis is for the most reliable to length of mechanical strangulation process equally imputed to late consultations.

During surgery, were realized 37.73% of resection anastomosis, 7.55% cases of stoma, 25.47% cases of adhesiolysis, 34.9% cases of hernia repairs, 10.38% cases of Hartmann, 1.89% cases of Bouilly Volkman. The great percentage of resection anastomosis expresses the state of the intestines at admission as such essential for elimination of the necrosis. Obtained results are not similar to that of Konaté M [14] who registered 14.58% of resection anastomosis, 10.42% adhesiolysis, and 30.21% hernia repairs in his study.

#### iii- Post-operative care management

Intravenous rehydration, analgesics and antibiotics was administered to all patients after surgery. The morbidities the most frequently recorded in this study included parietal suppurations with 59.43% and sepsis with 24.52%. These high rates may be explained by the fact that the surgery of bowel obstruction is classified under dirty or infected class of Altemeier as such postoperative infection risk exist and increased

by the laparotomy pathway. Secondly, morbidities are dependent on the surgical technique, consequently the resection of the intestine results in greater complications than a simple hernia repair. These obtained results are similar to those of Arlette Dogmo[11] who obtained as postoperative comorbidity parietal suppurations in 6.8% cases and bowel obstruction recurrences.

The mortality in this design study was 27.1%. this percentage is greater than that of Arlette Dogmo (6.17%), that of Madiba Sissocko (7.7%), that of Akcakaya and al.:[16] (7.5%), and Muyembé [17] (17%). This rate may be as a result of the advanced ages of our subjects, associated morbidities, surgical procedure and late consultation.

## V- CONCLUSION

Intestinal obstruction is a serious surgical emergency. Strangulated hernia was the leading cause with 31.4% as similar to reported patterns elsewhere. It is proven in this study that bowel obstruction in elderly patients affect mostly men (61%). The considerably high rate of morbidity (52.5%) and mortality rate (27.14%) reflect the poor health conditions of patients, advanced age, late consultation and probably a poor health delivery system that needs to define a clear politic of emergent care management process regarding the ageing population. Therefore, in order to reduce the morbidity and mortality rates in these hospitals, much has to be done concerning late consultation, early treatment of comorbidities and improved health care plans for hernia repairs at time and in the best possible existing health care facilities.

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