

Factors Influencing the Mortality of Early Reoperations Following Laparotomies at Kamenge University Teaching Hospital in Burundi

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Abstract

Aim: Identify the factors which influence the mortality of early reoperations following laparotomies at Kamenge University Teaching Hospital (KUTH).

Patients and Methods: It is a retrospective study analyzing on ten years. We have analyzed medical records of patients who had a reoperation during the same hospital stay or in the 30 days following the primary surgery.

Results: During the study period, 1249 patients underwent laparotomy and 48 of them (3.84%) have been reoperated with an overall mortality rate of 18.75%. The indications of the reoperation were mainly clinical, and the main ones were post-op peritonitis in 43.75% with a mortality rate of 14.5%, anastomotic leaks in 12.5% of the patients and an associated mortality of 60%, intestinal obstruction and surgical site infection in 12.5% of the cases both and severe hemorrhage in 10.41% of the patients with a mortality rate of 25%. The overall mortality rate was 18.75% and was also the highest in groups with advanced age, patients operated urgently, and patients reoperated early compared to the primary surgery.

Conclusion: Advanced age, septic and hemorrhagic complications, procedures performed urgently with unprepared patients and the short time span between the primary surgery and the reoperation are the main factors increasing the mortality rate of early reoperations following laparotomies. This rate which is not negligible could be decreased by avoiding some of the complications leading to a reoperation in the first place such as septic and hemorrhagic complications sometimes due to a care quality which is not always optimal especially in low resource areas.

Keywords: Mortality; Laparotomies; Kamenge University Teaching Hospital; Burundi

Introduction

Abdominal surgery can be followed by complications which can lead to a reoperation and among them, intraabdominal infections, post-op hemorrhage, intestinal obstruction and anastomotic leaks have been described as the main indications for reoperation [1-3]. In some studies, the frequency of reoperations reaches 7% of abdominal surgeries and the mortality increases significantly when a septic factor is responsible [1,4].

While the preoperative assessment of patients prone to be reoperated is done by clinical, biologic criteria, advanced radiologic tools usually CT-scan and Ultrasound, and laparoscopy, it's not usually the case in developing countries due to the lack of these diagnostic tools and clinical criteria is gold standard [1,5-7].

Few studies have been done on abdominal surgery post-operatory events in low resources areas which face limitations that impede on the prognosis of these surgeries.

Aim of the Study

Hence, this study aims to identify the factors influencing the mortality of early reoperations following laparotomies at KUTH in Burundi and identify factors which could be avoided to improve the prognosis.

Patients and Methods

It was a retrospective study covering a 10 years period at KUTH. We have included all the patients reoperated during the same hospital stay or in the 30 days following the primary abdominal surgery for a post-op complication suspected clinically or confirmed radiologically. The patients with incomplete medical records and patients initially treated with laparoscopy have been excluded. All patients were informed about the study and were admitted after their consent. The data have been collected on a pre-established form and taken from medical records, post-op reports and major surgery logbooks. The variables studied included those relevant to the initial laparotomy (epidemiological aspects and previous indication), factors that could explain the complication in part, and those influencing post-operative mortality in particular the time between the first operation and the reintervention. The results were compared with the literature.

Results

During the period of the study 1249 laparotomies have been performed among which 48 cases (3.8%) of reoperation have been retained for the study. The mean age was 33 years with 85.4% of the patients with less than 50 years of age and extremes ranging from 3 to 80 years. Females accounted for 67% with a sex ratio of 2.

Regarding past medical history, 7 patients have had one or more C-sections in the past, 6 have had past laparotomies, 2 patients were HIV positive, one patient was malnourished, and one patient had diabetes mellitus.

79% of the patients have been operated as an urgently with a mortality rate of 16.7% while 21% got operated electively with a mortality rate of 2% (Table 1).

Urgency	Number of surgeries	Deaths	Percentage (N = 48)
Emergency	38	8	16.66%
Elective	10	1	2.08%
Total	48	9	18.75%

Table 1: Mortality according to the urgency of the reoperation.

Regarding the type of surgery, obstetrics and gynecology procedures have led to more reoperations in 57.7% of the patients, followed by small bowel surgery and biliary surgery each with 3.5% of the patients reoperated.

The clinical signs which led to the decision of reoperation were abdominal pain which was present in 68.75% of the patients, fever was in 52.8%, tachycardia in 29.16%, tachypnea in 25%, abdominal tenderness and abdominal bloating in 20.83% each, vomiting in 18.75%, feces in the surgical wound in 10.41%, hypotension in 12.5%, no bowel movements and evisceration in 6.25% each, jaundice and consciousness disorders in 4.16% each.

In 54.2% of the cases, the decision of reoperating was not made upon medical imaging confirmation. Abdominal Xray was performed in 14.5% of the patients while ultrasound was performed in 39.6%.

The retained diagnoses were peritonitis in 43.75% with a mortality rate of 14.5%, GI fistulas due to anastomotic leaks in 12.5% with a mortality of 60%, intestinal obstruction, abdominal suture rupture and surgical wound infection in 12.5% each and severe hemorrhage in 10.41% with a mortality rate of 25%, one case of endometritis, a case of ascites and a case of incomplete extraction of choledochal stones both for which the patients did not survive (Table 2).

Diagnosis	Number of surgeries	Deaths	Percentage
Peritonitis	21	3	14.28%
GI fistula	4	1	25%
Severe hemorrhage	5	3	60%
Ascites	1	1	100%
Incomplete gallstones extraction	1	1	100%

Table 2: Mortality according to diagnosis.

The time span between the primary surgery and the reoperation varied from 1 to 60 days with a mean of 16.1 days. The majority of the patients (37.5%) have been operated the first week following surgery with a mortality rate of 33.33%, 27.8% have been operated during the second week following surgery with a mortality rate of 15.4% and 36% of the patients have been operated more than 2 weeks after

Time span	Number of surgeries	Deaths	Percentage
0 to 7 days	18	6	33.3%
8 to 14 days	13	2	15.4%
> 14 days	17	1	5.9%

Table 3: Mortality according to the time span between primary surgery and reoperation.

the primary surgery with a mortality rate of 5.9% (Table 3).

The overall mortality in the reoperated patients was 18.75%.

Discussion

The majority of our patients (85.41%) had less than 50 years old. This can explain a mortality which is relatively low as increased age increases the risk of death due to the fragility of the patients who usually have comorbidities. The literature reports a mortality rate of 42.5% for patients older than 50 years, 75% from age 60 and 100% from 70 years and older [4,8,9].

Nineteen patients (37.5%) in our series had comorbidities such as past history of laparotomy, HIV infection, tuberculosis, malnutrition, diabetes and mental health disorders. These comorbidities worsen the prognosis of operated and reoperated patients especially for HIV and Diabetes which decreases the immune response, hence explain in part the mortality in our series.

Regarding the urgency of the reoperation, 79.16% of the patients have been reoperated urgently with a mortality rate of 16.7% while 21% of the patients have been operated electively with a mortality rate of only 2%. The overall mortality rate is dominated with patients operated urgently and it can be explained by the fact that these patients are usually not well prepared for surgery and have a bad general condition [10-13]. The main diagnoses indicating reoperation with the highest mortality rate in our series were peritonitis, followed by GI tract fistulas due to anastomotic leak and severe hemorrhage, these complications are reported by other authors to be responsible of a high mortality rate as well [1,9,14-16]. Finally, the short time span between the initial surgery and the reoperation is another factor increasing mortality according to literature [13,16,17]. This is confirmed in our series as 33.3% of the patients reoperated in the first week following the initial surgery did not survive versus 15.4% in the second week and 5.9% only more than two weeks after the primary surgery.

Conclusion

Advanced age, septic and hemorrhagic complications, procedures performed urgently with unprepared patients and the short time span between the primary surgery and the reoperation are the main factors increasing the mortality rate of early reoperations following laparotomies. This rate which is not negligible could be decreased by avoiding some of the complications leading to a reoperation in the first place such as septic and hemorrhagic complications sometimes due to a care quality which is not always optimal especially in low resource areas.

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