Is There an Increased Complications Rate in After-Hours Colorectal Surgery?

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Abstract

When a surgical team is dealing with an after-hours colorectal surgery, they are actually confronting with a chain of elements and events, some linked to the patient and severity of the surgical case, others related to the medical team ability to cooperate, from nurses to surgeon and anesthetist.

There is a series of differences between elective and emergency performed surgeries, two of them and most important elements are the patient (disease type, age, preoperative condition) and the operating team (experience, technical performance after-hours, especially at night).

Keywords: complications rate, emergency colorectal surgery, after-hours surgery.

Rezumat

Atunci când o echipă chirurgicală realizează o intervenție chirurgicală colorectală în urgență, la ore târzii, se confruntă de fapt cu un lanț de elemente și evenimente, unele legate de pacient și severitatea cazului chirurgical, altele legate de capacitatea echipei medicale de a coopera, de la asistente medicale la chirurg și anestezist.

Există o serie de diferențe între intervențiile chirurgicale electrice și cele de urgență, două dintre ele și cele mai importante elemente fiind pacientul (tipul bolii, vârsta, starea preoperatorie) și echipa operatorie (experiență, performanță tehnică după multe ore de muncă, mai ales noapte).

Cuvinte cheie: rata de complicații, chirurgie colorectală de urgență, chirurgie la ore târzii.

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INTRODUCTION

To have an answer to this question, we have to understand that there is a vast group of potential factors that are of paramount importance in every colorectal surgery: gender, age, the level of damage of the bowel-perforation, ischemia, neoadjuvant radiotherapy, ASA-score, perioperative prepare of the patient with antibiotics and mechanical bowel preparation, associated illnesses. In addition to the aforementioned patient related factors, there are also surgical factors: laparoscopic vs. open surgery, anastomotic configuration – manual or mechanical, prolonged operating time, stress level of the surgical team performing after hours.

DISCUSSION

In elective colorectal surgery the main advantage is the patient-surgeon relationship. From the patient’s point of view, he is more relaxed, he is prepared physical and psychological prepared, well investigated and in some cases adjuvant therapy is administrated. The surgical team knows the patient, his illness status, has had the time to analyze the case, acknowledge a treatment plan, agree on the type of surgical procedure.

To reduce surgical site infection, before elective surgery, the bowel is prepared mechanical and with antibiotics. Mechanical bowel preparation is considerate the standard in surgical practice by decreasing intraluminal fecal mass there for the bacterial loud, das for reducing the rate of post operator infections and complications. Preparing the bowel for colorectal surgery includes a variety of interventions: administration of oral laxative (polyethylene glycol, magnesium citrate, sodium phosphate), liquid diet on the day before surgery and preoperative enema1. In addition to mechanical bowel preparation for the preoperative regimen, administration of per os or intravenous antibiotics has been found f a great benefit in decreasing the rate of surgical site infection2.

Emergency colorectal surgery has a high rate of complications and mortality. The patient that comes at the emergency room is unaware of his illness, it is not investigated and has incomplete bowel preparation. Undiagnosed advanced colorectal cancer and various benign colon diseases complicated with perforation, obstruction or ischemia require emergency surgery, situation in which the act of surgery itself rises the rate of morbidity and mortality3. In these cases, the surgical team is dealing with a patient that can associate pneumonia, sepsis, hemorrhage and renal failure, major symptoms threatening the life of the patient.

Undergoing colorectal surgery without the bowel prepared, the patient has a higher risk of anastomotic leakage, a major complication that occurs after surgery. In addition, ischemia, atherosclerosis, hypotension are leading risk factors for anastomotic fistula4. In this unfortunate case, the patient’s mortality rises, the exposure to intestinal fluid damages the homeostasis of the organism, the cellular matrix das for higher rates of sepsis and post operator wound complications.

In after hour surgery, beside the gravity of the emergency case, the surgical team must struggle with the stress and exhaustion accumulated during the day. Diminishing non-technical skills of the operating team at night, like management or teamwork skills and situational comprehension, contribute to higher complication rates. Situational awareness is defined as the ability of the physician to observe, understand and predict events in the operating room, abilities diminished at night and significantly associated with technical errors5. Nevertheless, situation awareness doesn’t affect only the operating team, teamwork and management skills may have an important impact on the anesthetists and nurses may, reflecting on the surgical patient and increasing potential lethal risks6.

Technical and non-technical skills performance and quality of the on-call staff are influenced by the leak of sleep, level of stress accumulated during the day. Communication errors are most common cause of unfortunate events, the atmosphere within the operating room has a direct influence on the quality of care, with direct proportional post-operator consequences7.

The working hours of surgeons have been a topic of debate in recent years. Sleep deprivation could negatively impact the cognitive function and performance, resulting in an increased risk of medical errors. This is an ethical problem for the patients, who have to achieve the best treatment possible. There are several studies that tried to find the best hours for surgeons to operate and whether sleep-deprivation affects their surgical skills8.

CONCLUSIONS

Colorectal surgery, elective or after-hour, exposes the patient to a majority of events and factors that affect his safety and increases the mortality and morbidity. Nevertheless, after-hours surgery is more complex, the surgeon confronts with an unprepared patient and in a
short amount of time he must investigate, analyses and decide the therapeutic conduit.

After-hour surgery can mean a patient that has hemorrhage risk, unprepared colon, mechanical and with antibiotics, exposes the patient to bacteria and the risk of post operator infection, anastomosis leaking, peritonitis, sepsis, wound complications; a more stressful environment for both the patient and the operating team.

Teamwork, cooperation and understanding between surgeon, nurses and anesthetist is an important element in the chain that assures the patient’s safety, element that needs improvement in order to progress in the exhausting environment that the operating room offers.

Compliance with ethics requirements:
The authors declare no conflict of interest regarding this article.
The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

References
