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Perioperative Management of Gastrectomies for Stomach Cancer at The Aristide Le Dantec University Hospital

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Summary

Objective: The aim of this study was to describe the Anaesthetic management of patients who underwent gastrectomy for stomach cancer at the Aristide le DANTEC University Hospital.

Patients and Methods: We conducted a retrospective and descriptive study from January 2014 to December 2018. We included all patients who underwent anaesthesia for gastrectomy for stomach cancer. We studied the epidemiology, Anaesthetic technique, analgesia and postoperative complications.

Results: Forty-four patients underwent gastrectomy, representing 8.8 procedures per year. The average age of patients was 55 years, ranging from 20 to 78 years, and the sex ratio was 1.31. Preoperatively, the main clinical signs were epigastric pain (95.5%), vomiting (50%), weight loss (52.3%), and 8 patients had a medical history (7 cases of hypertension and 1 case of diabetes). Patients were classified as ASA I (American society of anesthesiologist) (38.6%), ASA II (56.8%) and ASA III (4.5%). General anaesthesia combined with epidural analgesia was the most commonly used Anaesthetic technique (39%). The mean intraoperative blood loss was 250 ml. The predominant postoperative analgesia protocol was a combination of paracetamol + tramadol + epidural analgesia (20.45%). Thirteen patients (29.54%) experienced postoperative complications. Postoperative mortality was 29.4%.

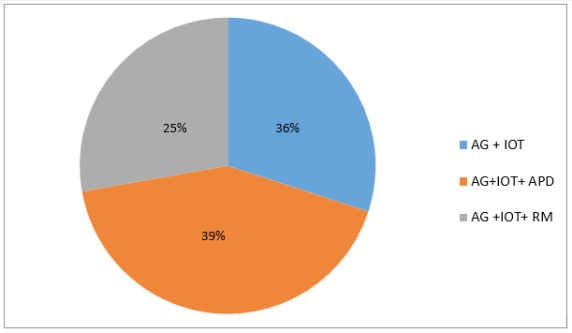
Conclusion: Anaesthetic management of gastrectomy involves general anaesthesia combined with perimedullary analgesia. Knowledge of risk factors related to the patient's condition and surgical treatment can help prevent post-operative complications.

Keywords: Gastrectomy; Anaesthetic Technique; Post-Operative Analgesia

Abbreviations: SPSS: Statistical Package for Social Sciences; GA: General Anaesthesia EDA: Epidural Analgesia; MSA: Morphine Spinal Anaesthesia; ASA: American Society of Anesthesiologist

Introduction

Gastrectomy for stomach cancer is a major abdominal surgery, hence the importance of a thorough preoperative assessment. The Anaesthetist and intensive care physician remains a key player due to their involvement in all stages of the surgical procedure. Anaesthetic procedures have undergone significant changes thanks to optimisation of patient care from the preoperative phase through to postoperative rehabilitation. Gastrectomy has been performed for a long time at the Aristide LE DANTEC University Hospital (HALD), but an assessment of the anaesthetic management of these patients had not yet been conducted. The aim of this study was to describe the perioperative management of patients who underwent gastrectomy for stomach cancer at the Aristide LE DANTEC University Hospital.



AG: General Anaesthesia; IOT: Orotracheal Intubation; APD: Epidural Analgesia; RM: Morphine Spinal Anaesthesia.
Figure 1: Distribution of patients according to Anaesthetic Technique.

Table 1: Distribution of patients according to analgesia strategy.

Analgesic Protocols	Staff Numbers	Percentage (%)
Paracetamol + Nefopam	2	4,54
Paracetamol + Tramadol	4	9,09
Paracetamol + Nefopam +Tramadol	1	2,27
Paracetamol + Morphine IV	4	9,09
Paracetamol + Nefopam + Morphine IV	4	9,09
Paracetamol+ Tramadol + Morphine IV	1	2,27
Paracetamol + MSA	2	4,54
Paracetamol + Néfopam + MSA	6	13,63
Paracetamol + Tramadol + MSA	3	6,81
Paracetamol + EDA	5	11,36
Paracétamol + Néfopam + EDA	3	4,54
Paracétamol + Tramadol + EDA	9	20,45
Total	44	100

IV: Intravenous; EDA: Epidural Analgesia; MSA: Morphine Spinal Anaesthesia

Table 2: Postoperative Complications.

Type of Complications	Numbers	Percentage (%)
Respiratory	3	6,81
Haemorrhagic Shock	2	4,54
Septic Shock	1	2,27
Acute Renal Failure	1	2,27
Surgical	6	13,63
Peritonitis	01	
Digestive Fistula	03	
Wall Abscess	02	

Methods and Patients

We conducted a descriptive, retrospective study covering an eight-year period (January 2014 to December 2018) in the general surgery, central operating theatre and multi-purpose intensive care units at the Aristide LE DANTEC University Hospital in Dakar. It focused on analysing the surgical and anaesthesia/ intensive care records of patients admitted to intensive care

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following gastrectomy for stomach cancer. The parameters studied were epidemiological data, anaesthetic technique, post-operative analgesia, complications occurring in intensive care and patient progress. All the data recorded was entered into Excel (MicrosoftTM) and analysed using SPSS (Statistical Package for Social Sciences) version 1.

Results

During this period, 44 patients underwent gastrectomy for stomach cancer and 1,140 underwent digestive surgery, representing a frequency of 3.86% for this procedure. The average age was 55 (range 20 to 78). The sex ratio was 1.31. The medical history found included high blood pressure (7 cases) and diabetes (1 case). At the anaesthesia consultation, the clinical signs are dominated by epigastric pain (95.5% of cases), vomiting (50% of cases) and weight loss (52% of cases). Patients were classified as ASA I in 39% of cases, ASA II in 57% and ASA III in 4%. In our series, three patients (6.81%) received neoadjuvant chemotherapy. Cefuroxime-based antibiotic prophylaxis was used in all patients. All patients underwent general anaesthesia with orotracheal intubation. General anaesthesia was combined with epidural analgesia in 28 patients (63.63%). (Figure 1) shows the distribution of patients according to anaesthetic technique. The average intraoperative blood loss was 300 ml, ranging from 250 ml to 800 ml, and twelve patients received an intraoperative blood transfusion. The average duration of surgery was 3 hours 30 minutes (ranging from 1 hour 45 minutes to 5 hours 30 minutes). Postoperatively, all patients received intravenous analgesics, including paracetamol combined with one or more of the following molecules: nefopam, tramadol, NSAIDs or morphine. Twenty-eight patients (63.63% of cases) received perimedullary analgesia (PDA: 17 cases (39%) and MSA: 11 cases (25%)). In the series, twelve different postoperative analgesia strategies with paracetamol in each protocol were used. (Table 1) shows the distribution of patients according to the postoperative analgesia protocol. The average length of stay in intensive care was 4 days (range: 2 days to 7 days). The course of treatment was marked by the occurrence of post-operative complications in 13 patients (29.40%). (Table 2) shows the distribution of patients according to post-operative complications. Thirteen (13) patients died, representing a mortality rate of 29.54%.

Discussion

During the period, 44 patients underwent gastrectomy for stomach cancer, with an incidence of this digestive surgery procedure of 3.86% (8.8 cases per year). In other previous studies in Senegal conducted by Diop B and Diop NF, this prevalence was 0.42% (5.14 cases per year) and 7.7 cases per year, respectively [1,2]. In Senegal, stomach cancer remains the leading cancer of the digestive tract, accounting for 48% of all digestive tract cancers [3]. Most often, hospital incidences are reported. The absence of a cancer registry makes it difficult to obtain incidence figures at the national level. The incidence of gastric cancer varies according to geographical region. The highest rates are found in East Asia, Eastern Europe and South America, while the lowest rates are in North America and parts of Africa. More than 70% of gastric adenocarcinomas are found in developing countries [4]. Gastric cancer is rare before the age of 50, and the average age at diagnosis is over 70 in Western series [5]. In our series, patients were younger, with an average age of 55. Our results are similar to those reported in other series in Africa [6,7]. This could be explained by the youthfulness of African populations and the variability of factors involved in gastric carcinogenesis, some of which, such as Helicobacter pylori infection, are acquired in early childhood [7,8]. Gastrectomy for cancer is a major abdominal surgery. General anaesthesia (GA) combined with intraoperative and postoperative regional spinal analgesia is the most appropriate method for this procedure. This anaesthetic technique was used in 64% of cases. General anaesthesia, justified by the level of anaesthesia required (T4), has the advantage of providing amnesia, controlling the airways and allowing deep curarisation.

Perimedullary anaesthesia, which can be epidural analgesia (EDA) or morphine spinal anaesthesia (MSA), reduces the number of anaesthetic drugs required and allows early extubation (thereby limiting respiratory complications), thus helping to improve postoperative outcomes [9]. The factors determining the choice of anaesthesia technique depend on the patient's history, the habits of the anaesthesia team, the availability of local anaesthetic products and the preference of the well-informed patient at the time of the anaesthesia consultation. In our series, 64% of patients underwent surgery under GA and perimedullary anaesthesia (including 39% under GA+EDA and 25% under GA+MSA) and 36% under GA alone. GA alone was used due to the unavailability of epidural kits and morphine. Antibiotic prophylaxis was systematic for all patients and was based on second-generation cephalosporin in accordance with our facility's protocols. We believe this practice to be well suited based on the SFAR's antibiotic prophylaxis recommendations for digestive surgery. The most recommended antibiotics are second-generation cephalosporins. Gastrectomy, supra-mesocolic surgery, is a clean-contaminated surgery classified as Altemeier class 2. The spontaneous infection risk of 5 to 15% is reduced to less than 7% if antibiotic prophylaxis is properly administered [10]. The occurrence of three cases of post-operative infection in our series despite antibiotic prophylaxis can be explained by the patients' condition (neoplasia, malnutrition, chemotherapy) and the absence of laminar flow in our operating theatres.

Intraoperative bleeding remains a major complication during and after gastric surgery, leading to increased morbidity and mortality. In our series, the average blood loss was 300 ml, with extremes of 250- and 800-ml. Jeong and Lui Z report average blood loss of 185 and 240 ml, respectively, in their studies [11,12]. Twelve patients (27.27%) received a blood transfusion. In this group of transfused patients, two had experienced haemorrhagic shock. Perioperative blood transfusion has been identified as a risk factor

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for morbidity and mortality during gastrectomies for cancer. It increases the frequency of postoperative infectious complications in proportion to the volume of the transfusion [13]. Gastric surgery is a procedure that causes significant post-operative pain, which hinders post-operative rehabilitation. The most commonly adopted management protocol is multimodal analgesia combining epidural analgesia and intravenous analgesia [9,14]. In our series, 57% of patients received multimodal analgesia. Epidural anaesthesia and spinal anaesthesia with morphine were performed in 39% and 18% of cases, respectively. Epidural analgesia has advantages in terms of reducing intraoperative bleeding, the frequency of thromboembolic complications and even a reduction in cardiac morbidity or hospital stay after gastrointestinal surgery [9]. With the use of a small dose of morphine (0.1 to 0.3 mg), spinal analgesia with morphine remains recommended and provides prolonged analgesia of excellent quality for 24 to 48 hours without significant side effects following major abdominal surgery. The risk of respiratory depression, which is evident between the 3rd and 15th hour, is reduced and requires that the dose of 0.3 mg not be exceeded [15]. In our series, several postoperative analgesia strategies were adopted.

The analgesia protocol was established on a case-by-case basis based on the assessment of the senior anaesthetist. The unavailability of epidural kits and morphine explains why 43% of our patients did not receive perimedullary analgesia. We do not consider any protocol that does not include perimedullary anaesthesia to be suitable for this type of surgery. Regardless of the post-operative analgesic technique used, its effectiveness is reflected in patient satisfaction in terms of improvement and reduction in pain, shorter hospital stays, and rapid and optimal functional recovery [16]. The assessment of pain and the effectiveness of post-operative analgesia is mandatory and is a prerequisite for effective and rational management. It facilitates communication and the patient's participation in the management of their own pain. It is based on simple tools that are easy to understand and quick to use (analogue visual scale, simple digital scale) [17]. Postoperative complications were noted in 13 patients, or 29.54% of cases. In several African and Western series, post-operative morbidity ranged from 15 to 30% [18,19]. This morbidity was largely related to the occurrence of post-operative peritonitis complicating digestive fistulas and respiratory complications related to impaired respiratory function after susmectocolic surgery. Postoperative mortality after gastrectomy varies from 4 to 10% [18]. In Senegal, Diop found a mortality rate of 5.8% in his series [2]. In our series, the overall mortality rate was 29.4%. In the vast majority of cases, these deaths occurred in patients with respiratory complications and intra-abdominal infections. Knowledge of risk factors related to the patient's condition, advances in surgical techniques and post-operative resuscitation can contribute to reducing post-operative mortality.

Conclusion

Gastrectomies for cancer are procedures involving gastric resection performed under general anaesthesia. Surgery for stomach cancer continues to be associated with high postoperative morbidity and mortality rates, which justifies strict selection of candidates for this surgery and the use of trained medical and surgical teams.

References

1. DIOP NDF (2017) Chemotherapy of gastric adenocarcinomas at the Joliot Curie Institute of the Aristide Le Dantec University Hospital (January 2010-January 2017). Doctoral thesis in medicine, Senegal, Dakar: UCAD 225.
2. Diop B, Dia AA, Ba PA, Sow O, Thiam O, et al. (2017) Surgical Management of Gastric Tumors in Dakar: About 36 Observations. Health Sciences 18(4): 34-38.
3. Diouf ML, Ndiaye MF (1999) Digestive endoscopy in Senegal: problems and realities. Acta-endoscopica 29(3): 431-452.
4. Jemal A, Bray F, Center MM, Ferlay J, Ward E, et al. (2011) Global cancer statistics. CA Cancer J Clin 61(2): 69-90.
5. Seoane A, Bessa X, Balleste B, O'Callaghan E, Panadès A, et al (2011) Helicobacter pylori and gastric cancer: relationship with histological subtype and tumor location. Gastroenterol Hepatol 28(2): 60-64.
6. Fall B, Dieng M, Mbengue M, Dangou JM (2003) Care management of lower gastric tumors at Dakar. Preliminary study of 60 cases. Dakar Med 48(1): 50-53.
7. Asombang AW, Rahman R, Ibdah JA (2014) Gastric cancer in Africa: Current management and outcomes. World J Gastroenterol 20(14): 3875-3879.
8. Ahmed A, Ukwenya AY, Makama JG, Mohammad I (2011) Management and outcome of gastric carcinoma in Zaria, Nigeria. Afr Health Sci 11(3): 353-361.
9. Gaertner E (2021) Epidural Anaesthesia and Analgesia (obstetrics excluded). Elsevier Masson SAS 36(325): (A-10).
10. French Society of Anaesthesia and Resuscitation (2011) Antibiotic prophylaxis in surgery and interventional medicine (adult patients): Update 2010. Ann Fr Ansty Resuscitation 30(2): 168-190.
11. Liu Z, Feng F, Guo M, Liu S, Zheng G, et al. (2017) Distal gastrectomy versus total gastrectomy for distal gastric cancer. Medicine Baltimore 96(5): e6003.
12. Jeong O, Ryu SY, Zhao XF, Jung MR, Kim KY, et al. (2012) Short-term surgical outcomes and operative risks of laparoscopic total gastrectomy (LTG) for gastric carcinoma: experience at a large-volume center. Surg Endosc 26(12): 3418-3425.
13. Xiao H, Quan H, Pan S, Yin B, Luo W, et al. (2018) Impact of peri-operative blood transfusion on post-operative infections after radical gastrectomy for gastric cancer: a propensity scores matching analysis focusing on the timing, amount of transfusion and role of leukocyte depletion. J Cancer Res Clin Oncol 144(6): 1143- 1154.
14. Hansson LE, Ekström AM, Bergström R, Nyrén (2000) Surgery for stomach cancer in a defined Swedish population: current practices and operative results. Swedish Gastric Cancer Study Group. Eur J Surg 166(10): 787-795.

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15. Gwirtz KH, Young JV, Byers RS, Alley C, Levin K, et al. (1999) The safety and efficacy of intrathecal opioid analgesia for acute postop erative pain: seven years' experience with 5969 surgical patients at Indiana University Hospital. Anesth Analg 88(3): 599-604.

16. Belbachir A, Fletcher D, Larue F (2009) Management of postoperative pain: evaluation and quality improvement. Ann Fr Anesth Resuscitation 28: 1-12.

17. Habiba E (2011) Postoperative analgesia in abdominal surgery. Doctoral thesis in medicine-Marrakech 2.

18. Viste A, Haùgstvedt T, Eide GE, Søreide O (1988) Postoperative complications and mortality after surgery for gastric cancer. Ann Surg 207(1): 7-13.

19. Park DJ, Lee HJ, Kim HH, Yang HK, Lee KU, et al. (2005) Predictors of operative morbidity and mortality in gastric cancer surgery. Br J Surg 92(9): 1099-102.

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