

Perioperative Management of Prostate Tumors in the Inter-Arms Medical Center

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Abstract

Original Research Article

Introduction: Prostate tumors are a pathology of the elderly and are commonly seen in our anesthetic practice. The anesthetic evolution in recent years is marked inter alia by the use of short-acting anesthetics and the use of new airway control devices and hemodynamics. **Objectives:** To present the data on anesthesia for prostate surgery, to study the risks specific to this surgery, the choice of an appropriate anesthetic scheme and to take care of specific perioperative complications. **Results:** Sixty-four patients had been operated on. The average age was 68.4 years old. Patients were most often 65 years old and over. Benign prostatic hyperplasia was the main diagnosis and was found in 89.1% of patients. The pre-anesthetic visit made it possible to search the medical and surgical history. Coagulation disorders were a contraindication to the intervention. The patients were all treated until complete healing before the procedure. All patients have systematically benefited from an electrocardiogram. Nearly a quarter of patients (24.6%) had an echocardiography. More than half (62.5%) had an ASA score of 2. All patients had systematically received Ceftriaxone-based antiprophyllaxis at a dose of 2g. Spinal anesthesia was the only one performed. Complications occurred in 12 patients or 14.06%. Multimodal analgesia based on paracetamol and tramadol was systematic. No patient has benefited from thromboembolic prevention. The evolution was favorable for all patients. **Conclusion:** Perioperative anesthetic management is an important step in prostate surgery. The anesthetic evolution in recent years is marked by the use of short-acting anesthetics and the use of new airway control and hemodynamic devices.

Keywords: Prostate-Tumor-Perioperative-Rachianesthesia-Periphery.

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INTRODUCTION

Prostate tumors are a pathology of the elderly and frequent in our anesthetic practice. The evolution of anesthesia these recent years has been marked by the use of short-acting anesthetics and the use of new airway control and hemodynamic devices. Patients have cardiovascular, respiratory, neurological and metabolic defects [1]. Due to their age, patients have the cardiovascular, respiratory, neurological and metabolic defects of the elderly [2]. Postures used in prostate surgery have hemodynamic and respiratory effects and cause neurological and muscle damage. The objective of our study was to present anesthesia data for prostatic surgery, to study the specific risks of this surgery and to manage its specific perioperative complications.

PATIENTS AND METHODS

It was a retrospective, descriptive and analytic study. All the patients scheduled for a prostate tumor surgery were included in the study. Coagulation disorders, urinary tract infection and alterations in left ventricular function. Concerning the surgical and anesthetic protocol: the preanesthetic consultation was carried out at the most two months before the surgery allowing to balance an arterial hypertension generally of incidental finding, diabetes or other chronic conditions. All patients have systematically benefited from an electrocardiogram. All those with electrocardiogram abnormalities have required a transthoracic echocardiography to check the left ventricle function and a probable abnormality that could impact the anesthesia. They were tested for anesthesia after the conclusion of the echocardiography. The anesthetic technique was standardized and consisted of a locoregional anesthesia with a monitoring made of

electrocardiogram, invasive blood pressure, arterial frequency and peripheral oxygen saturation. The material was made of a 5cc syringe, a 25-gauge spine needle, bupivacaine isobar and fentanyl. The spinal anesthesia was performed after local anesthesia with xylocaine and then introduction of the spine needle with an introducer and injection into the subarachnoid space of 10mg of bupivacaine mixed with 50µg of fentanyl. The filling consisted of isotonic saline solution and ephedrine bolus in case of post-spinal anesthesia hypotension. Antibiotic prophylaxis was systematically performed before the incision with ceftriaxone at 2g in 250ml of saline solution. Multimodal analgesia was based on the association of paracetamol (1g/6h) and tramadol (100mg/6h in small perfusion). We have

studied: age, type of surgery, medical history, urine culture, vitals, clinical and paraclinical data, the surgical approach and peri-operative complications.

RESULTS

Over the study period, 64 patients had surgery. The mean age was 68.4 years with a standard deviation of 8.8 and extremes of 45 and 84 years. Patients were most often in the age group of 65 and above. Benign prostatic hyperplasia was the main diagnosis and was found in 89.1% of the patients and the rest were patients with a prostate tumor who had benefited from an ablation by cervico-prostatic incision (see Table-1).

Table-1: Distribution of patients according to personal data

Personal data	Absolute frequency (n)	Relative frequency (%)
Age		
45-54 years	4	6,3
55-64 years	19	29,7
65 years and over	41	64,1
Diagnosis		
Bening prostatic hyperplasia	57	89,1
Prostate cancer	7	10,9
Indication		
Adenomectomy	57	89,1
Ablation by cervico-prostatic incision	7	10,9

The preanesthetic visit has made possible to look for the medical and surgical history. They were found in 43.8% of the patients. All chronic pathologies,

especially hypertension or diabetes, were stabilized before the intervention. The different history findings are shown in Table-2.

Table-2: Distribution of patients by medical and surgical history

Medical and surgery history	Absolute frequency (n)	Relative frequency (%)
Inguinal hernia cure	10	35,7
Hypertension	8	28,6
Type II diabetes	3	10,7
Epilepsy	1	3,6
Extraction of kidney stones	1	3,6
Cystectomy	1	3,6
Kystic lipoma	1	3,6
Moore prothesis	1	3,6
Tuberculosis and umbilical hernia cure	1	3,6
Peptic ulcer	1	3,6

Medical treatment was provided for all those who had an incidental finding pathology. Hemoglobin levels had no impact on patients' fitness. All those with anemia were transfused in preoperative or perioperative. However, coagulation disorders were a contraindication to intervention until normalization of parameters. No patient had a patent infection. They were all treated till complete healing before the surgery.

Renal function was disrupted in one patient but was not a contraindication. More than half or 62.5% had an ASA score of 2. Only one patient was ASA 3. Complications occurred in 12 patients or 14.06%. The Table-3 below illustrates the results of complications and their management.

Table-3: Distribution of patients according to complications

Complications	Absolute frequency (n)	Relative frequency (%)
Complications		
Hypotension	5	55,6
Hypertension	2	22,2
Vasovagal episode	1	11,1
Hemorrhagic shock	1	11,1
What we did		
VF + Blood transfusion	4	44,4
Diazepam bolus (5mg) and Nicardipine at ESP	2	22,2
Atropine bolus + Ephedrine bolus + VF + Mv	2	22,2
VF + Ephedrine bolus + Blood Transfusion	1	11,1

VF= vascular filling, ESP= electric syringe pump, MV = manual ventilation

Oxygenation was systematic in all patients with complications. Patients who received a whole blood transfusion have represented 7.81%. Multimodal analgesia with paracetamol and tramadol was systematic in all patients. No patients have benefited from thrombo-embolic prevention. The mean duration of the procedure was 92 min with a standard deviation of 29.3 and extremes of 40 to 180 min. The evolution was favorable in all patients. They had resumed feeding from the fourth hour after intervention and their previous treatment.

DISCUSSION

Anesthetic perioperative management is an important stage in prostate surgery. Many studies have found an advanced age of the patients that may decompensate a pre-existing cardiovascular or respiratory pathology [3-5]. The anesthesia to be performed in these fragile subjects is not free of complications. The majority of our patients were 65 years of age or above. This could be explained by the fact that the prostate tumor is a pathology of the elderly [4] but also by an increasing life expectancy in Senegal [6]. Most of the prostate tumors in our series were benign prostatic hyperplasia confirming the high frequency of benign prostate pathology in the world [7-9]. The complications of these tumors are most often indication for surgery. These are obstructive voiding disorders (dysuria, weak urinary flow), or irritative (pollakiuria, incontinence) more or less important, or even severe complications such as renal failure or complete acute urinary retention [9, 10].

Medical history was led by hernia treatment followed by hypertension and diabetes. Many of our patients who have had benefited from a hernia cure have often been subject to recurrence of hernia sometimes related to the prostate tumor. This can be explained by the lack of optimal exploration of his patients by surgeons including rectal examination and PSA dosing in front of any patient over 50 years of age coming for inguinal hernia.

Aging-related cardiovascular impairment results in loss of peripheral artery elasticity, diastolic

dysfunction, decreased cardiac output by decreased ejection fraction (under stress), a decrease in heart rate due to increased activity of the parasympathetic nervous system, an increase in heart rhythm disorders by degenerative changes in pacemaker cells and conduction pathways and a decrease in baroreceptor response. The consequences are hypertension, arteriopathy, ischemic heart disease, heart failure, aortic stenosis, mitral insufficiency, arrhythmias (atrial fibrillation, atrial flutter, atrioventricular block) [11, 12]. Anesthetic implications are limited effects of accelerative drugs (atropine, isoproterenol) and inhibitive (propranolol), a reduced reflex response when hypotension and hypovolemia. Thus, these patients are to be rigorously explored during the preanesthetic visit. There is a consensus on the need for sterile verified urine in pre-operative for any prostate surgery. Infection (>100,000 germs/ml) increases postoperative morbidity. Due to their age, patients have the cardiovascular, respiratory, neurological and metabolic defects of the elderly [2].

On the paraclinical aspect, coagulation blood tests are essential as well as the electrocardiogram. Prostate surgery is a hemorrhagic surgery because there are many vascular connections hence the importance of performing coagulation blood tests. All our patients had a normal coagulation before surgery. The electrocardiogram was systematic in all our patients and has detected abnormalities in 24.6% of the patients that had required an echocardiography. Class ASA 2 was predominant in our practice and this was related to the fact that the majority of patients were elderly with often age-related defects [11]. Locoregional anesthesia (spinal anesthesia) was performed in all our patients [2]. It is an easy technique with fewer side effects and adapted to the duration of the intervention. The evolution of anesthesia these recent years has been marked, among other things, by the use of short-acting anesthetics [1]. Antibiotic prophylaxis was systematic. The opening of the urinary tract must classify any surgical or endoscopic procedure in the class "clean-contaminated surgery" and, for each procedure, assess the interest of possible antibiotic prophylaxis. This can only be considered in the case of sterile urine intervention [13]. This matches with our practice

because our asepsis conditions are not always optimal. Anesthesia for prostate surgery is sometimes associated with complications that can be responsible for many minor and major events and which follow-ups can be simple or more complex. Hemodynamic complications are the most frequent and are often linked to a reflex response reduced when hypotension and hypovolemia [14]. However, the recognition and treatment of perioperative complications specific to prostatic surgery must be immediate [2]. Management consists of filling and administration of sympathomimetics. Multimodal analgesia with paracetamol and tramadol was systematic in all our patients. Surgery and surgical stress facilitate the release of tumorous cells into the circulation and depress cellular immunity. Anesthesia per se impairs the functions of neutrophils, macrophages, dendritic cells, T-lymphocytes and natural killer cells. Regional anesthesia provides excellent analgesia, low incidence of postoperative nausea and vomiting, and a favorable immunological profile based on the actual understanding of laboratory data [15]. Treatment of postoperative pain can play an important role in limiting the migration of cancerous cells after surgery. Opioids inhibit cellular and humoral immune functions and have proangiogenic properties [16]. Thrombosis prophylaxis is recommended for high-risk interventions. There is no objective argument allowing to choose between a pre- or postoperative initiation of drug prophylaxis. This is based on the use of low molecular weight heparins. It may be associated with the use of vein compression stockings. The recommended duration of treatment is approximately seven days. It can be extended to four or six weeks following a cancer surgery [17]. None of our patients, however, has benefited from thrombo-embolic prevention. They all benefited from early mobilization. This can be explained by a high hemorrhagic risk of the prostatic pathology.

CONCLUSION

The perioperative management of prostate tumors allowed us to present the anesthesia data but also to prevent the risks specific to this surgery and to set an adapted anesthesia scheme and a treatment protocol of perioperative complications.

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