SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

The Contribution of Thoracic Epidural Analgesia in Major Urological Surgery

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DOI: 10.36347/sasjs.2021.v07i10.019 | **Received:** 24.08.2021 | **Accepted:** 01.10.2021 | **Published:** 30.10.2021

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Abstract **Original Research Article**

Introduction: Total cystectomy with urinary diversion is a major urological surgery associated with high perioperative morbidity and mortality. The placement of anesthesia or epidural analgesia (APD) is a very common practice in many surgical procedures, especially in urologic surgery. Our objective was to assess the value of thoracic epidural analgesia in terms of the delay in resumption of transit and its impact on postoperative rehabilitation during heavy urological surgery. ***Material and method:*** Retrospective observational study carried out at the IBN TOFAIL Hospital in Marrakech over a period of 2 years. Any patient requiring total cystectomy by laparotomy or laparoscopy for bladder cancer was included. All patients were offered epidural analgesia ("APD" group). The patients who could not benefit from it constituted the control group "T". The descriptive analysis consisted in the calculation of the absolute and relative frequencies for the qualitative variables, and of the positioning and dispersion parameters for the quantitative variables (mean, standard deviation). The normal distribution of the variables was studied by the Kolmogorov-Smirnov test. In bivariate analysis, the comparison of qualitative variables made use of Pearson's Chi2 statistical test and Fisher's test if necessary. Student's t test and Mann Whiteny test. The significance level was retained for a $p < 0.05$. Statistical analysis was performed using SPSS software version 19.0. ***Results:*** Sixty three patients spread to the inclusion criteria were collected during the study period, divided into 27 patients in the "control" group and 33 patients in the "APD" group. The most affected age group was that of 35 years and 86 years with an estimated average of 60.25 years ± 10.75. Smoking was a risk factor for bladder cancer in 75% of cases, with an average of 20PY. The most used surgical technique was Bricker in 50% of cases, followed by enlargement enterocystoplasty in 33.3% and then bilateral ureterostomy in 16.7% of cases. The intraoperative bleeding was in the "APD" group 307.89 ml [250.14] vs "Control" group 323.53 ml [209.25] (p value = 0.84). The amount of fentanyl administered intraoperatively was in the "APD" group 52.53 µg [69.66] vs. "Control" group 120.59 µg [77.17] (p value = 0.009). The mean duration of resumption of transit was 2.21 days in the "APD" group [1.03] vs. 3.65 days on average in the "Control" group [1.05] (p value = 0.0001). The consumption of opioids postoperatively was significantly higher in the "Control" group. (p = 0.0001). The mean duration of ambulation (d) was in the "APD" group 1 day [0.00] and the "Control" group 1.18 days [0.39] (p value = 0.083). ***Conclusion:*** Rehabilitation after heavy urological surgery depends on suitable postoperative analgesia. The epidural remains the most effective analgesic method in heavy surgery.

Keywords: Thoracic Epidural enterocystoplasty Whiteny.

INTRODUCTION

Total cystectomy is the standard treatment for high-grade, non-metastatic bladder-infiltrating tumors and superficial tumors that have resisted treatment with immunotherapy or endovesical chemotherapy [1].

Laparotomy cystectomy is associated with morbidity rates of 25-35% and mortality rates of up to 4% [2, 3]. In addition, morbidity has been reported to be related to the patient's background, in particular the American Society of Anesthesiologists (ASA) score [4]. Laparoscopic radical cystectomy for bladder cancer has been reported to be associated with a lower morbidity rate [3].

Thoracic epidural analgesia (DPA) is used to manage postoperative pain and facilitate early mobilization after major intra-abdominal surgery. Evidence suggests that epidural anesthesia / analgesia is associated with improved survival after cancer surgery [5].

Postoperative rehabilitation, as defined by Henrik Kehlet, is a multidisciplinary approach to the postoperative period, aimed at the rapid restoration of

the previous physical and mental capacities of an operated patient [6]. Its final objective is to reduce the length of hospitalization without having a negative impact on the quality of care. It is a global reflection that involves, in addition to the medical team, nursing staff, nutritionists, functional rehabilitators and the social team [7].

The primary objective of this study is to assess the value of thoracic epidural analgesia in terms of the time it takes to resume transit and its impact on postoperative rehabilitation during major urological surgery.

METHODS

This is a retrospective observational study carried out at IBN TOFAIL Hospital in Marrakech over a period of 2 years. Any patient scheduled for total cystectomy by laparotomy or laparoscopy for bladder cancer was included. All patients were offered epidural analgesia "APD" group. The patients who could not benefit from it constituted the control group "T". Resumption of transit was defined by the reappearance of gas and / or the release of the first postoperative bowel movement. Morbidity was defined as all medical or surgical complications at 90 days.

The descriptive analysis consisted of calculating the absolute and relative frequencies for the qualitative variables, and the positioning and dispersion parameters for the quantitative variables (mean, standard deviation).

The normal distribution of the variables was studied by the Kolmogorov-Smirnov test. In bivariate analysis, the comparison of the qualitative variables made use of the statistical test of Chi2 of Pearson and that of Fisher if necessary. Student's t test and Mann Whiteny test. The significance level was retained for a $p < 0.05$. Statistical analysis was performed using SPSS software version 19.0.

RESULTS

Sixty-three patients with the inclusion and exclusion criteria were recruited in our series, divided into 27 patients in the “control” group and 33 patients included in the “APD” group.

The age of the patients varies between 35 years and 86 years, the corresponding mean is 60.25 years (standard deviation = 10.75).

Smoking was a risk factor for bladder cancer in 75% of cases, with an average of 20PY. The surgical technique used is distributed as follows: 50% of patients underwent a Bricker, 33.3% an enlargement enterocystoplasty and in 16.7% a bilateral ureterostomy. Laparotomy was performed in 41.7% and 58.3% of patients underwent laparoscopic surgery.

The intraoperative bleeding was: “APD” group 307.89 ml [250.14] vs “Control” group 323.53 ml [209.25] (p value = 0.84).

The mean duration of the surgical procedure was 4.42h [1.21] in the “APD” group vs. 5.76h [1.71] in the “Control” group; it is therefore significantly higher in the “Control” group. (p value = 0.012).

The amount of fentanyl administered intraoperatively was: "APD" group 52.53 µg [69.66] vs. "Control" group 120.59 µg [77.17] (p value = 0.009).

The mean duration of resumption of transit was 2.21 days in the “APD” group [1.03] vs. 3.65 days on average in the “Control” group [1.05] (p value = 0.0001).

Consumption of morphine at H6; H12; H18 and H24 were respectively: “APD” group 2.97 mg [1.18] vs. “Control” group 6.29 mg [1.31] (p value = 0.00011); “APD” group 3.47 mg [1.26] vs. “control” group 5.29 [1.53] (p value = 0.0001); “APD” group 2.79 mg [0.85] vs “Control” group 2.95 mg [0.65] (p value = 0.00012) and “APD” group 2.95 mg [0.91] vs group “ Control ”3.82 [1.01] (p value 0.010), therefore the mean consumption of opioids was significantly higher in the“ Control ”group.

The mean duration of ambulation was: “APD” group 1 day [0.00] vs. “Control” group 1.18 days [0.39] (p value = 0.083).

DISCUSSION

Postoperative rehabilitation, as defined by Henrik Kehlet, is a multidisciplinary approach to the postoperative period, aimed at the rapid restoration of the previous physical and mental capacities of an operated patient. Surgery is sometimes accompanied by a number of postoperative complications which, while not life-threatening, in many cases delay postoperative recovery. The multidisciplinary perioperative management aimed at improving postoperative rehabilitation also aims to prevent severe complications, in particular cardiovascular, pulmonary, infectious, thromboembolic or neurological, but also less well-known sequelae such as asthenia, depression and especially pain. Chronic after surgery.

Rehabilitation after major urological surgery is particularly dependent on suitable analgesia. In fact, a lack of pain management prolongs the period of convalescence, delays functional recovery by limiting the possibilities of physiotherapy and sometimes even contributes to the perpetuation of pain after surgery [6].

In our study, we did not objectify a significant reduction in intraoperative bleeding (p value = 0.84), as well as the incidence and volume of transfusions were

similar in the two groups (“APD” group versus “control” group).

EmineOzyuvaci *et al*. in a randomized study, found a significant reduction in intraoperative bleeding in the group of patient who received epidural anesthesia compared to patients who received general anesthesia scheduled for heavy urologic surgery, the data suggests that this reduction in blood loss was clinically as well as statistically significant, such as the incidence of blood transfusions were reduced in the "APD" group [8].

Thus, in the series by Ladjevic *et al*. The rate of intraoperative bleeding was significantly lower in the “APD” group for CPT compared to the group operated on under general anesthesia alone [9].

The same results were reported in the Mazul-Sunko series, with a decrease in intraoperative bleeding in the “APD” group (49.37 ± 354.13) than in the “AG” group (742.31 ± 403.69) (p value = 0.006) [10].

In our study, intraoperative opioid consumption was lower in the “APD” group compared to the “Control” group (p value = 0.009).

This data is relatively in agreement with that found in the literature. Thus, intraoperative continuous epidural anesthesia with a positive effect on postoperative analgesia, with an average consumption of opioids at the 6th, 12th, 18th and 24th hour postoperatively in our series was significantly reduced in the “group”. APD ”compared to the“ Control ”group. These data are relatively similar to that found in the literature. In particular in the series by François *et al*. which included 56 patients operated on for CPT and who observed a significantly reduced consumption of opioids postoperatively at H12 and H48, respectively “APD” group 9.5 mg vs “Control” group 15.5 mg (p value = 0.028) and “APD” group 17.5 mg vs. “Control” group 26 mg (P value = 0.005) [11].

In our study, the mean time to resumption of transit was reduced in the “APD” group compared to the “Control” group (P value = 0.0001). These results are comparable with that of the series by François *et al*., in which the transit recovery time was respectively 66h in the “APD” group vs 104h in the “Control” group (P value = 0.005).

Rigg *et al.* In a randomized study conducted on 915 patients at high anesthetic risk, pointed out that combined epidural and general anesthesia could be more beneficial than general anesthesia alone for patients scheduled for major surgeries and in particular for the purpose of respiratory failure [12]. Likewise Sharrock et al. in their 10-year study, reported that mortality may be reduced in patients over 80 years of age after hip or knee surgery with epidural anesthesia [13].

CONCLUSION

Rehabilitation after major urological surgery depends on suitable and effective postoperative analgesia. The control of postoperative pain remains the main objective of the medical team, nurses and functional rehabilitators, allowing a comfortable postoperative and rapid mobilization. Certainly, the gold standard of postoperative analgesia for major urologic surgery is analgesia by perineural catheter. However, epidural analgesia retains all its interest in centers which master the technique. It is not a question of opposing techniques but of using that which will be integrated into a comprehensive rehabilitation program adapted for each structure.

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