



ORIGINAL RESEARCH PAPER

Anaesthesiology

INTEREST OF OPIOID FREE ANESTHESIA ON HEMODYNAMICS AND PONV IN COLECTOMY

KEY WORDS: Colectomy - Haemodynamics - Opioid Free Anesthesia - Postoperative Nausea And Vomiting

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ABSTRACT

Objective : To evaluate the interest of opioid free anesthesia (OFA) on hemodynamics and postoperative nausea and vomiting (PONV) in patients operated of colectomy.

Patients and methods : A retrospective, monocentric and transversal study was performed. It is studying the opioid free anesthesia (OFA) compared to a standard anesthesia using opioids during a colectomy over a period of 2 years from January 2017 to December 2018.

Results: One hundred and twelve patients were selected, 50 of whom were operated under OFA. They were 70 ± 14.10 years old on average with a sex ratio of 1. The incidence of PONV was higher in the standard group (p = 0.04). But the number of hypotensive and hypertensive events as well as the vasopressor requirements were proportional in both groups.

Conclusion : This study was able to show the OFA's interest in PONV but not in hemodynamic status.

INTRODUCTION

The combination of opioids with hypnotics tends to cause arterial hypotension by potentiating the effects of each substance. Perioperative hypotension is associated with cardiovascular events in patients undergoing non-cardiac surgery [1]. Most "anesthetic" complications are related to the use of opioids (nausea, vomiting ...) [2]. Hence our objective to evaluate the OFA's interest in hemodynamics and PONV in colectomy surgery.

PATIENTS AND METHOD

A retrospective, monocentric and transversal study was performed. It compares OFA to standard anesthesia (with opioids) during a colectomy between the month of January 2017 and December 2018. We included all patients over the age of 18 who underwent colectomy. Patients who had been operated on in emergencies or transferred to intensive care and patients who have benefited epidural anesthesia were excluded.

In patients of the OFA group, 1 microgram per kg of clonidine, 1.5mg per kg of ideal weight of lidocaine and 0.15mg per kg of ideal weight of ketamine were administered. Then they received a hypnotic and a curare more or less halogens in maintenance.

Patients in the standard group had opioids (sufentanyl or remifentanyl), hypnotics (propofol) and / or halogens (maintenance) and curare. A record card was used to collect the data from the Dxcare® software and the patient's chart records.

We studied the following parameters: age, gender, ASA score, antecedents, type of anesthesia (OFA or standard), hemoglobin level before surgery, systolic pre and intraoperative arterial pressures, amount of intraoperative vascular fluid, vasopressors used intraoperatively, blood loss and PONV. The software Epi-info 7 versus 1.1.14 was used for data analysis. The Chi-2 or Fischer test was used for the comparison of the qualitative variables and the student test

for the comparison of averages. A difference was considered significant for a value of p less than 0.05.

RESULTS

We selected 112 patients Out of the 246 patients, 50 (44.64%) were operated under OFA. They were 70 ± 14 years old on average with a sex ratio of 1. Fifty-three patients, 47, 29% are hypertensive and 24 or 21.43% are cardiopaths. Most are classified ASAII (46.43%) and ASA III (44.64%). No patients had hypotension prior to anesthetic induction. Half had high blood pressure. We did not find any difference between the two groups regarding the number of hypotensive or hypertensive events. The majority of patients had vascular filling between 5 and 10 ml / kg / h (45.54%). Regarding mean vascular filling, there was no significant difference for both groups (p = 0.51). For the mean amount of ephedrine administered intraoperatively, the use of neosynephrine and / or noradrenaline, there was no significant difference for both groups (p > 0.05). For perioperative blood loss, there was no significant difference for both groups (p = 0.06). PONV appeared in 43 patients or 38.39% in 24 and 48 hours postoperatively. The OFA was significantly associated with a significant decrease in PONV episode (p = 0.04).

Table I: Characteristics Of Patients And Hemoglobin Levels Before The Operation

CHARACTERISTI CS	OFA n (%)	Standard n (%)	TOTAL n (%)	P-value
Antecedents: Hypertension	23(20,53)	30(26,78%)	53(47,29)	0,80
Ischemic heart disease	8(7,14)	16(14,28)	24(21,43)	0,21
Atrial fibrillation	3(2,67)	9(8,03)	12(10,71)	0,14
OSA	3(2,67)	3(2,67)	6(5,36)	0,78
Diabetes	6(5,35)	6(5,35)	12(10,70)	0,69
ASA Score :				
I	4(3,57)	2(1,78)	6(5,36%)	0,26

II	25(22,32)	27(24,10)	52 (46,43%)	0,46
III	18(16,07)	32(28,57)	50(44,64)	0,09
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Table II: Hemodynamic variations of patients

	OFA n (%)	Standard n (%)	TOTAL n (%)	P-value
Arterial pressure before induction				
Hypotension	0(0)	0(0)	0(0)	NI
Normal	29(25,89)	27(24,10)	56(50)	0,13
Hypertension	21(18,75)	35(31,25)	56(50)	
Arterial pressure per-operative				
Hypotension peroperative				
- yes	36(32,14)	39(34,82)	75(66,96)	0,31
- no	14(12,5)	23(20,53)	37(33,04%)	
SAP max mean	144,94+/- 21,91 [100-200]	144,35+/- 19,40 [100-200]		0,71
SAP min mean	78,66+/- 12,58 [50-110]	79,59+/- 16,57 [25-125]		0,81
Vascular filling (ml/kg/h)				
Medium filling	8,45+/- 5,70 [1,82-39]	8,91+/- 4,99 [3,12-29,23]		0,51
<5	12(10,71)	15(13,39)	27(24,11%)	0,98
5-10	25(22,32)	26(23,21)	51(45,54%)	0,39
>10	12(10,71)	20(17,85)	32(28,57)	0,33

SAP :Systolic Arterial Pressure

Table III: Distribution of patients according to the quantity of vasopressors administered intraoperatively

Vasopressors	OFA n(%)	Standard n(%)	TOTAL n(%)	P-value
Average quantity Ephedrine (mg)	8,16+/- 11,24 [0-39]	11,37+/- 12,63 [0-51]		0,45
Use of ephedrine	19(16,96)	32(28,57)	51(45,54%)	0,15
Use of neosinephrine	12(10,71)	7(6,25)	19(16,96%)	0,07
Use of noradrenaline	1(0,89)	1(0,89)	2(1,79%)	0,87

Table IV: Intraoperative Blood Loss and PONV

	OFA n(%)	Standard n(%)	TOTAL n(%)	P-value
Blood loss:				
- <500ml	50	58	108(96,43%)	0,06
- ≥ 500ml	0	4	4(3,57%)	
PONV	14(12,5)	29(25,89)	43(38,39)	0,04

DISCUSSION

The study of the intraoperative hemodynamic status of our patients did not show any difference between OFA and standard groups. Vasopressor consumption was similar in both groups. There was no significant difference. Regarding

vascular filling and blood loss, there was no significant difference in the 2 groups. One of the main fears blocking the use of an OFA is to see hypotension related to the use of alpha 2 agonists. We could not highlight these hypotensions. Similarly, in 2017, Katoto and al found no significant difference in the occurrence of systolic blood pressure variation in two groups of patients operated under OFA and opioids, p = 0.277 [3]. But most authors like Guinot [4] and Bello [5] report more hypertensive episodes in the OFA than in the standard group, and require less recourse to ephedrine. Our majority use of small doses of clonidine and not dexmedetomidine could explain the lack of consistency of our results with theirs.

Regarding PONV, we found in this study that OFA was significantly associated with a reduction in PONV. This result corresponds to what the other authors have found. An earlier study reported a reduction in PONV in obese patients in bariatric surgery by avoiding the use of opioids during anesthesia [6]. In the standard group, 22 patients (37.3%) reported PONV compared to 12 patients (20.0%) in the OFA group (P=0,04). The severity of nausea was statistically different in both groups (p = 0.02). The severity of PONV was significantly worse in the classic group. According to a meta-analysis [7], clonidine and dexmedetomidine both reduced the incidence of PONV (cumulative incidence up to 8 h after surgery). Another recent meta-analysis [8] has also shown a reduction in the rate of PONV in patients undergoing anesthesia without opioids. Its incidence was 24% and 19% in the standard groups and without opioids, respectively (p = 0.03). Though, Bello and al [5] estimated that the incidence of PONV was similar between the two groups. He explained that this may be underestimated because of the retrospective nature of the study.

CONCLUSION

This retrospective monocentric study could not highlight its beneficial effect on the hemodynamic status of patients. This could be due to a lack of power of the study. However, a significant reduction in the occurrence of PONV in the OFA group was observed.

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