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The effect of postoperative serratus anterior plane block on postoperative analgesia in patients undergoing breast surgery

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ABSTRACT

Objective: This study aimed to evaluate the effect of serratus anterior plane block (SAP) on postoperative morphine consumption. We aimed to determine the differences between both similar blocks and evaluate the effect of the methods of application of this block on patients' postoperative pain scores and morphine consumption.

Material and Methods: This study is a single-center, prospective and observational study performed with 40 volunteer patients with American Society of Anesthesiologists (ASA) I-III, who were 18-70 years of age, scheduled for breast surgery. A total of 40 patients who underwent general anesthesia were divided into two groups each with 20 patients. While SAP block was applied to the study group, no block was applied to the control group. SAP block was made by injecting a total of 40 ml of 0.25% bupivacaine between 2 muscles after the test dose was injected with saline. All patients were followed up for 12 hours postoperatively with patient-controlled analgesia (PCA) pump. Morphine consumption, visual analogue score (VAS) values and side effects were recorded at the postoperative 1st, 6th and 12th hours.

Results: There was no significant difference between the two groups in terms of hemodynamic parameters and demographic data. Postoperative morphine consumption and postoperative analgesic requirement were significantly lower in the SAP block group ($p< 0.001$). Postoperative VAS values were significantly lower in the SAP block group ($p< 0.001$). No complication was observed related to the block.

Conclusion: It was found that the SAP block reduced morphine consumption, significantly decreased VAS values, and reduced side effects due to opioids postoperatively.

Keywords: Serratus anterior plane block, breast surgery, postoperative pain management

INTRODUCTION

Serratus anterior plane (SAP) block has efficacy including thoracic anterior wall, lateral wall and axilla (1). Female patients with breast surgery were included in this study. Breast cancer in women is often treated surgically. Although the incision line varies according to the type of surgery, it is usually long. It is thought that both postoperative pulmonary complications increase and mobilization of the patients decreases due to the surgical site in the thorax. After surgery, the pain patterns of these patients change, and anesthetists have a lot to do for the treatment of pain.

Postoperative pain is still considered a major problem in surgical clinics though many treatments and drug options have been developed. Although pharmacological treatments have been developed, it is difficult for physicians to control the side effects. In addition to pharmacological treatment, various methods can be applied postoperatively in breast surgery. These techniques include thoracic epidural block, intercostal nerve block, thoracic paravertebral block, pectoral nerve block, SAP block and local infiltration.

Today, postoperative pain management is updated with regional anesthesia techniques. The development of ultrasound and more frequent use of it in clinics leads to the development of new regional anesthesia techniques. The pectoral nerve block and serratus anterior plane block described by Blanco et al. are among these techniques (1,2). Regional anesthesia is defined as blocking the functioning of the nerves in certain parts of the body for a while without causing loss of consciousness and thus eliminating the sense of pain (3).

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The pectoral nerve block and the SAP block aim to decrease the patient's postoperative pain scores (1,2). Patient satisfaction is increased and analgesic consumption is reduced with these techniques.

In this study, the effect of SAP block on postoperative morphine consumption was evaluated. We aimed to determine the effect of differences between both similar blocks and the methods of application of this block on patients' postoperative pain scores and morphine consumption and to find the most effective method.

Regional techniques are generally used as a preemptive method in breast surgeries, but we tried to demonstrate the difference from similar studies by applying SAP block postoperatively. We aimed to reduce postoperative complaints of the patients and the side effects seen in additional analgesic use.

MATERIAL and METHODS

This is a single-center, prospective and observational study that was conducted in University Hospital. The study started after the decision of the Clinical Research Ethics Committee of Cumhuriyet University Faculty of Medicine dated 19.03.2019 and numbered 2019-03/03. This study included 40 volunteer patients aged between 18-70 years, who underwent modified radical mastectomy under elective conditions and who were between the American Society of Anesthesiologists (ASA) I-III and 18-70 years old. The patients were electively evaluated at the preoperative anesthesia outpatient clinic. Patients with diabetes mellitus and neoadjuvant chemotherapy were excluded from the study since their pain sensation could be impaired. Written and verbal consents were obtained in accordance with the Helsinki Declaration for anesthesia applications and research. These consents were taken from all of the patients participating in the study but serratus anterior plane block was performed to twenty of them. So, the patients were blinded. Randomization was based on a computer-generated code that was prepared at a remote site and sealed in opaque, sequentially numbered envelopes. Before the operation, preoperative procedures performed in routine were applied to all patients. Patients fasted 8 hours before the operation and the crystalloid replacement was made as 2 mg/kg/h.

Premedication was performed with midazolam (Zolamid, DEFARMA-Turkey) in a dose of 70 mcg/kg intramuscularly to reduce preoperative anxiety in all patients. Heart rate (HR), electrocardiograms (ECG) in the DII derivation, noninvasive mean arterial blood pressures (MAP) and peripheral oxygen saturation (SpO_2) were followed up before and during surgery.

General anesthesia was applied to all patients as an anesthesia method. Peripheral venous access was provided with 18 gauge. After making necessary measurements and preparations, 1 mcg/kg fentanyl (Fentanyl Citrate® Hospira, USA), 2-3 mg/kg propofol (Propofol®, Fresenius Kabi, Melsungen, Germany) and 0.6 mg/kg rocuronium (Esmeron®, Organon) (Kloosterstraat, Netherlands) were administered intravenously (IV). The patients were ventilated with 100% oxygen for 5 minutes and intubated with an appropriate endotracheal tube. After endotracheal intubation, all patients were given 48% nitrogen oxide, 2% sevoflurane (Sevorane®, Abbott, Chicago, USA) and 50% oxygen for anesthesia maintenance.

Following the completion of the surgical procedure, we divided the patients into two groups regardless of their demographic and surgical features. The patients in the study group were under general anesthesia in supine position at the end of the surgery. The intercostal midaxillary line level was sterilized. Sonovisible needle (Stimuplex ®D 0.71 x 80 mm, 22G, Braun, Germany) was inserted through the skin, subcutaneous and latissimus dorsi muscles, respectively by using ultrasound (US). Between the serratus anterior and latissimus dorsi, the needle was placed in the craniocaudal direction. Aspiration was performed and no blood or air was seen. After 2 mL of saline was injected as the test dose between the two muscle plans, the serratus anterior plan blockage was applied by injecting 0.25% bupivacaine (Buvasin, VEM, Turkey) in a dose of 40 mL. No intervention was applied to the control group.

This randomized, controlled and prospective study is single-centered and the same anesthesiologist made the blocks to all patients, and there is no practitioner difference between the patients who were blocked. All the patients in the study were blinded. Then, a 10 mg/kg dose of paracetamol infusion was sent to all patients before being awakened. The duration of the surgeries in both groups, and additionally, the duration of the block application in the study group was recorded.

All patients were extubated after intravenous administration of Sugammadex (Bridion, Merck Sharp Dohme, New Jersey, USA) at a dose of 4 mg/kg. Patients with an Aldrete score of 9 and above were taken to the recovery unit after anesthesia (PACU). All patients received patient-controlled analgesia (PCA) pump in the recovery unit. Patient-controlled analgesia was prepared with IV morphine to be used in both groups in the postoperative period. PCA was prepared with 0.5 mg concentration in 1 milliliter of morphine hydrochloride (Morphin HCl®, Galen drug). The PCA pump device (CADD-legacy® PCA pump Model 6300-100 ml Cassette, USA) was set as 1 mg bolus, 8 minutes lockout time, 6 pushes in 1-hour dose limit.

The patients were followed up in the surgical service where they were hospitalized. Visual analogue score (VAS) and morphine consumption were recorded at the postoperative 1st, 6th and 12th hours. In addition to analgesic, paracetamol (Parole, Atabay, Turkey) 10 mg/kg IV infusion was given to patients with VAS over 5. The time the analgesic drug was given was recorded. Side effect profiles of the patients related to morphine were recorded as nausea, vomiting and constipation.

Patients with ASA 4 and above, who had infection in the region where the block would be applied, who had coagulopathy, liver and kidney failure, patients that could not cooperate, patients that did not want to be a volunteer, patients who described allergies to the drugs used, and those that had neuropathy were not included into the research.

Statistical Method

Data obtained from this study were analyzed on SPSS (ver: 22.0) statistic program on the computer. When the parametric test assumptions were fulfilled (Kolmogorov-Smirnov), variance analysis in significant repeated measurements of the difference between the two means in independent groups and Bonferroni tests were used. When the parametric test assumptions were not fulfilled, Whitney U test, Friedman test and Wilcoxon test were used. In the evaluation of the data obtained by counting, chi-square test was applied in 2x2 and multi-wells. The error level was taken as 0.05. In this study, when α= 0.05 β= 0.10 1-β = 0.90, it was decided to add 20 individuals to each group and the power of the test was found to be p= 0.9092.

RESULTS

When the demographic data of the 40 patients included in the study were evaluated, the age, weight, height and ASA classifications of both groups are shown in Table 1. There were 20 patients in both groups. Mean age in the control group was 41.3 ± 15.27 years, and 48.80 ± 15.06 years in the study group, and there was no statistically significant difference between the groups (p>0.05). Arithmetic weight averages of the patients were 74.60 ± 10.75 and 73.50 ± 14.68 in the control and study groups, respectively, and there was no significant difference between the groups (p>0.05). The height averages of both groups were 159.55 ± 3.52 cm and 159.75 ± 3.40 cm in the control and study groups, respectively, and there was no significant difference between the groups (p> 0.05). When the ASA scores of the patients were evaluated, it was found as 2.00 ± 0.79 in the control group, and 2.25 ± 0.64 in the study group, and p= 0.31 between the two groups.

Intraoperative heart rate (HR) of the patients was recorded at basal (0^{th} minute), 30^{th} minute, 1^{st} hour and 2^{nd} hour. Based on these values, no statistically significant difference was found between consecutive and simultaneous measurements in the control and study groups (p> 0.05).

Intraoperative peripheral oxygen saturation (SpO_2) of the patients was recorded at basal (0^{th} minute), 30^{th} minute, 1^{st} hour and 2^{nd} hour. Based on these values, no statistically significant difference was found between consecutive and simultaneous measurements in the control and study groups (p> 0.05).

Intraoperative mean arterial pressure (MAP) of the patients was recorded at basal (0^{th} minute), 30^{th} minute, 1^{st} hour and 2^{nd} hour. There was a significant difference between the groups at the 2^{nd} hour of MAP values. No statistically significant difference was found between other consecutive and simultaneous measurements in the control and study groups (p> 0.05). These MAP values are shown in Table 2.

When the surgery durations of the patients were compared, mean surgery duration was 133.25 ± 40.7 minutes in the control group and 117.25 ± 43.30 minutes in the study group, and there was no statistically significant difference between the two groups (p> 0.05). When the first analgesic application time was compared in both groups, a statistically significant difference was found between the groups (p< 0.05). Mean time of the first analgesic requirement was found to be 1.29 ± 0.78 hours in the control group and 5.50 ± 0.71 hours in the study group (Table 3).

Additional analgesics were performed in 9 patients in the control group and in 2 patients in the study group. While 11 of the 40 patients required additional analgesics, 29 patients did not need additional analgesics. When these data were evaluated, p= 0.013 was found. There was a significant difference between the groups (Table 4).

In the data of the 40 patients evaluated, constipation was observed in 1 patient in the study group and 6 patients in the control group. In addition, nausea was observed in 2 patients in the control group. According to these data, p= 0.028 and there was a statistically significant difference between the groups (Table 5).

When the patients' 1^{st}, 6^{th} and 12^{th} hours of morphine consumption were recorded and evaluated cumulatively, there was a significant difference in both groups (p< 0.05). In the control group, 2.35 ± 0.56 mg of morphine was consumed in the first hour, and

Table 1. Demographic data of the patients

	Control Group (n= 20)		Study Group (n= 20)		
	Mean ± SD	**Minimum-Maximum**	**Mean ± SD**	**Minimum-Maximum**	**p**
Age (year)	41.30 ± 15.27	22-69	48.80 ± 15.06	19-69	0.13
Weight (kg)	74.60 ± 10.75	59-96	73.50 ± 14.68	42-100	0.79
Height (cm)	159.55 ± 3.52	155-166	159.75 ± 3.40	152-165	0.86
ASA	2.00 ± 0.79	1-3	2.25 ± 0.64	1-3	0.31

kg: Kilogram, cm: Centimeter, ASA: American society of anesthesiologists, SD: Standard deviation, n: Number of the patients.

Table 2. Comparison of the intraoperative hemodynamic data

Measurement time	Control Group (n= 20) Mean ± SD	Study Group (n= 20) Mean ± SD	p
HR Basal	81.55 ± 8.89	82.80 ± 9.12	0.663
HR 30. Minute	73.30 ± 7.40	75.80 ± 8.16	0.317
HR 1. Hour	73.10 ± 7.63	73.53 ± 7.60	0.862
HR 2. Hour	74.42 ± 6.79	74.50 ± 7.76	0.979
MAP Basal	94.25 ± 15.75	103.35 ± 14.20	0.072
MAP 30. Minute	86.95 ± 13.98	94.10 ± 12.32	0.094
MAP 1. Hour	84.7 ± 13.58	90.21 ± 13.58	0.285
MAP 2. Hour	83.08 ± 12.26	90.70 ± 7.10	0.207
SpO_2 Basal	95.10 ± 2.75	94.90 ± 2.73	0.774
SpO_2 30. Minute	93.55 ± 1.05	94.05 ± 2.82	0.835
SpO_2 1. Hour	93.3 ± 1.26	94.11 ± 2.02	0.279
SpO_2 2. Hour	92.67 ± 1.37	92.80 ± 2.10	0.859

HR: Heart rate, MAP: Mean arterial pressure, SpO_2: Peripheral oxygen saturation, SD: Standard deviation, n: Number of the patients.

Table 3. Comparison of the patients' mean surgery durations and the first analgesic requirements

	Control Group (n=20) Mean ± SD	Study Group (n= 20) Mean ± SD	p
Surgery duration (minute)	133.25 ± 40.7	117.25 ± 43.30	0.236
First analgesic need (hour)	1.29 ± 0.78	5.50 ± 0.71	0.032

SD: Standard deviation.

Table 4. Comparison of the postoperative additional analgesic requirement

Absent present			Additional Analgesic Requirement		Total	p
Group	Control	Number	11	9	20	0.013
		Ratio (%)	55%	45%	100%	
	Study	Number	18	2	20	
		Ratio (%)	90.0%	10.0%	100%	
Total		Number	29	11	40	
Ratio (%)		72.5%	27.5%	100%		

Table 5. Comparison of the side effects seen in the postoperative period

None		Side Effects				
		None	Nausea	Constipation	Total	p
Control	Number	12	2	6	20	0.028
	Ratio(%)	60%	10%	30%	100%	
Study	Number	19	0	1	20	
	Ratio(%)	95%	0%	5%	100%	
Total	Number	31	2	7	40	
	Ratio(%)	77.5%	5.0%	17.5%	100%	

Table 6. Comparison of the postoperative morphine consumption and VAS values

	Control Group (n= 20) Mean ± SD	Study Group (n= 20) Mean ± SD	p
Morphine 1st hour (mg)	2.35 ± 0.56	1.08 ± 0.61	< 0.001
Morphine 6th hour (mg)	8.53 ± 2.61	4.95 ± 1.73	< 0.001
Morphine 12th hour (mg)	14.23 ± 3.76	9.48 ± 2.47	< 0.001
VAS 1st hour	6.10 ± 1.07	3.40 ± 1.14	< 0.001
VAS 6th hour	3.50 ± 0.69	2.35 ± 0.67	< 0.001
VAS 12th hour	1.60 ± 0.60	1.60 ± 0.50	0.901

mg: Milligram, VAS: Visual Analogue Scale, N: Number of the patients, SD: Standard deviation.

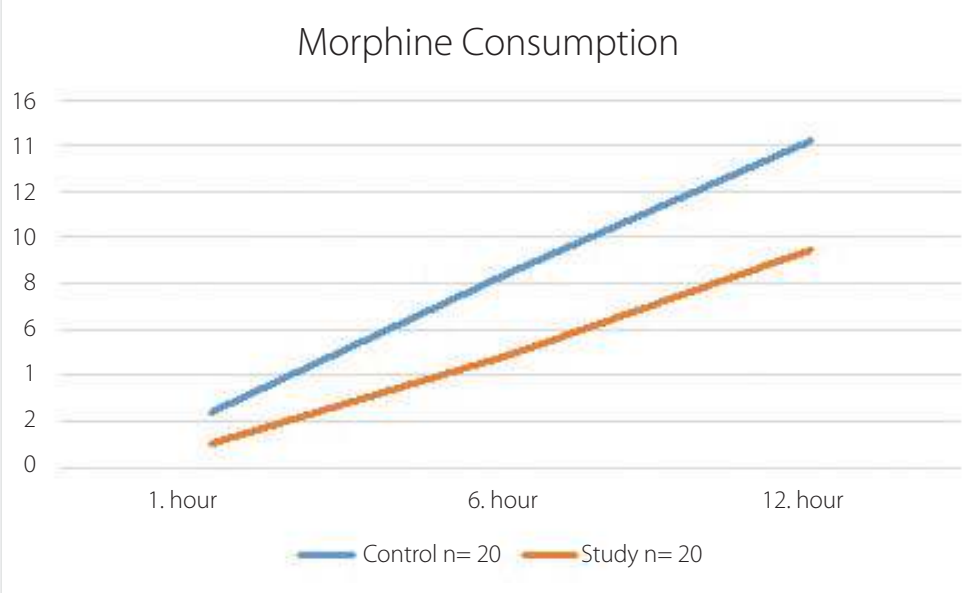

Figure 1. Morphine consumption of the patients.

1.08 ± 0.61 mg of morphine was consumed in the study group. While 6th-hour morphine consumption was 8.53 ± 2.61 mg in the control group, it was 4.95 ± 1.73 mg in the study group. At the 12th hour, morphine consumption was 14.23 ± 3.76 mg and 9.48 ± 2.47 mg, respectively, for the control and study groups. When the 1st, 6th and 12th-hour VAS values of the patients were evaluated, the 1st and 6th-hour VAS values were found to be significantly different (p< 0.05). No significant difference was found between the 12th-hour VAS values (Table 6) (Figure 1,2). In addition, the application time of the block was found to be 246 ± 101 seconds on average.

DISCUSSION

Breast cancer is the most common cancer that affects women, making up 31% of all new cancer cases in women. Depending on the patients' condition, severe acute pain and chronic pain may occur after breast cancer surgeries ranging from 25% to 60% (4). Through effective awareness campaigns carried out in Turkey in recent years, more diagnoses of patients and more surgeries have been realized.

In breast surgeries, thoracic epidural, ipsilateral or bilateral paravertebral block, intercostal block, pectoral nerve block (PECS) and serratus anterior plane (SAP) block can be applied (5-7). Since thoracic epidural has been in use for relatively longer years, it is more preferred in clinics. Due to its side effects such as sympathetic blockade, hypotension, and motor blockade due to its proximity to the medulla spinalis, the popularity of this regional method has decreased in recent years (5). Because of the pneumothorax risk of paravertebral and intercostal blocks due to its proximity to the thorax, these methods also started not to be chosen by physicians (6,7). We have chosen ultrasound-guided technique of SAP block in the study because of decreased risk of complications such as pneumothorax and local anesthetic systemic toxicity.

We accomplished the US-guided SAP block after surgery, after the skin was closed. Skin closing time may vary from surgeon

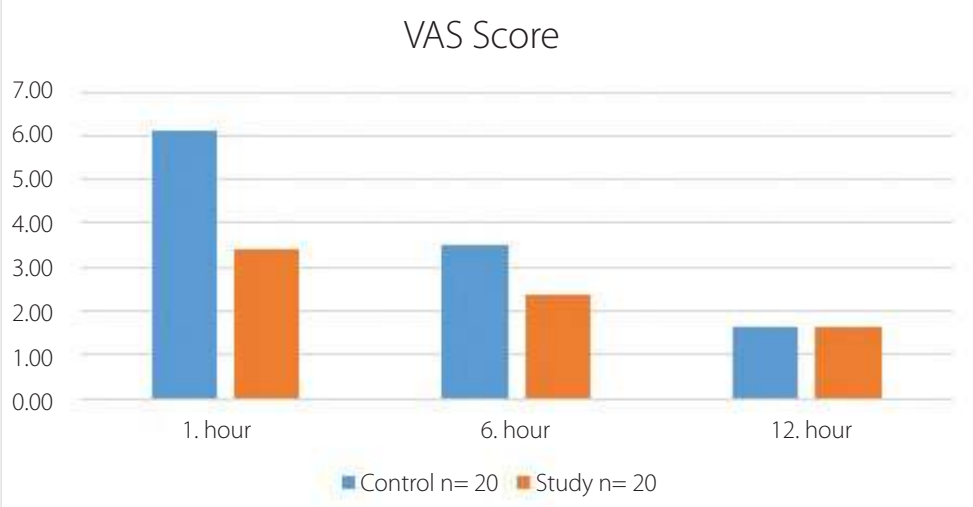

Figure 2. VAS values of the patients.

to surgeon. The standardization of the study could be disrupted because of the time between local anesthesia infiltration performed before the skin closure and the waking-up of the patient would vary. Regardless of how long the duration of the US-guided SAP block lasts after the surgical procedure is completed, the procedure after performing local anesthesia infiltration was the waking-up the patients. Thus, a standardization was achieved in the patients in terms of the time to start the local anesthetic effect and the patients to start feeling pain.

The popularity of the PECS block, described by Blanco et al. for the first time in 2011, has increased (2). This block provides analgesia on the anterior thoracic wall. The serratus anterior block, which Blanco et al. first described in 2013, can be used effectively in thoracotomies in addition to the PECS block. On MR images, it was thought that the drug was distributed both to the anterior and posterior walls and that it could provide analgesia in T-2 and T-9 dermatomes. Blanco and his friends found the average duration of paresthesia in the PECS block as 721 minutes, and the motor block time as 743 minutes in their study (2).

In a study conducted by Kunigo et al. in 2017, patients were divided into two groups. The first group was blocked with 20 ml of 0.375% ropivacaine and the second group with 40 ml of 0.375% ropivacaine. The second group (T2-T6) affected significantly more dermatomes than the first group (T1-T3) (p= 0.004). As a result, it was found to have a better drug distribution in a group of 40 ml (8). Our study was conducted with 40 ml of 0.25% bupivacaine and was found to be longer compared in terms of the first rescue analgesia. Although given at the same volume of drug, it showed effectiveness for a longer time in our study. It was thought that the local anesthetic was different, and the drug concentrations were also different in our research, and also blocking the patients postoperatively could have caused this condition. In addition, patients receiving morphine with PCA are likely to need analgesics over a longer period of time.

Abdallah et al. conducted a retrospective cohort study in 2017 (9). They divided the patients into 3 groups of PECS block group, SAP block group, and control group. US-guided PECS I block was applied to the PECS block group with 15-20 ml of 0.33% -0.5% ropivacaine. In the SAP block group, 20-25 ml of 0.33- 0.5% ropivacaine was applied by using US. There was no significant difference between PECS and SAP groups in terms of postoperative nausea and vomiting and oral morphine consumption in their study (9). In our study, parallel to this study, we achieved similar results in terms of postoperative morphine consumption, first analgesic and additional analgesic requirement, and postoperative complications.

The case series of Khemka et al. on oncological breast surgery was performed on 11 patients (10). Patients had SAP blockade with 25 ml of 0.25% levobupivacaine. Then, the PCA device was attached to all patients in the PACU unit and observed for 24 hours. All patients received 1 gram of paracetamol IV at 6-hour intervals. The average blockage time was 6 minutes and the average surgical time was 234.5 minutes. During follow-up, the first patient with a VAS score of more than 3 was found at the 9^{th} hour, two patients at the 10^{th} hour, and 4 patients at the 12^{th} hour. They demonstrated that the SAP block is effective in breast surgery and can be applied including the latissimus dorsi flap (10). In our study, we obtained similar results in terms of mean surgical time and block application time. VAS scores were lower than the ones in our study. We attributed this to the fact that Khemka et al. routinely gave analgesics. In addition, the amount of local anesthetic delivered remained at a lower volume than in our study. In the blocks we did, the need for secondary analgesics emerged in the later hours although the effect of the block ended.

In a randomized, double-blind, parallel-group, placebo-controlled study conducted by Yao et al. with 72 patients, patients received 25 ml of 0.5% ropivacaine or physiological saline as a placebo during SAP block. Compared to the control group, postoperative VAS pain scores were lower in the SAP group for up to 24 hours. It was found that preoperative SAP block with ropivacaine reduced the cumulative postoperative opioid consumption by 0.5% in the first postoperative 24 hours. Patients in the SAP block group had a lower risk of developing postoperative nausea and vomiting (PONV) compared to the control group. Based on the VAS scores of acute postoperative pain and cumulative opioid consumption, they found that the results show that the SAP block is a powerful part of multimodal pain management after mastectomy (11). Although our study had 12 hours of follow-up, it is similar to this study. Morphine consumption, VAS scores and PONV reduction significantly decreased in both studies. The difference in our study was that the SAP block was performed after the surgical procedure, and we obtained similar results. In our study, we think that it provides more effective analgesia due to the absence of side effects in the high volume of local anesthetic used.

In a meta-analysis including 19 randomized controlled studies (13 breast surgery, 6 thoracic surgery) involving 1260 patients in total, morphine consumption of the SAP block and control group were examined by Matthew et al (12). They found that SAP block significantly reduced morphine consumption at 0^{th}, 6^{th}, and 24^{th} hours postoperatively. When all studies were examined, it was found that the risk of PONV was decreased in patients who received SAP block (12). In our study, we found morphine consumption less than in the control group in the first 12 hours in the SAP block in accordance with the literature. Due to the decrease in morphine consumption, the number of PONV occurrences decreased in the SAP group in our study.

Ali et al. studied 40 patients in total, as 20 patients in the control group, 20 patients in the SAP block group (13). Thirty ml of 0.25% bupivacaine was used in the SAP block; and 2 ml saline was injected in the control group. Routine and standard analgesic treatments were started for the patients. 24-hour opioid consumption and PONV incidence of the SAP block group were found to be less. VAS scores were lower in the SAP group at all hours. A significant difference was found between the two groups in terms of the time of first analgesic need (13). Our study revealed similar results to this study; 12-hour observation results and 24-hour observation results were found to be compatible with the literature. The difference in our study was that the block was applied postoperatively as 40 ml and similar results were obtained.

In this study, postoperative SAP block provided effective analgesia in accordance with the literature. The blockage was preemptive in other studies; however, in our study, it was performed postoperatively and its effectiveness was shown. Postoperative opioid complications decreased and the SAP block provided effective analgesia. None of our patients developed complications related to block application.

CONCLUSION

In this randomized, controlled and prospective study, the effectiveness of postoperative SAP block, and its effects on opioid consumption and VAS scores were investigated. It was found that it reduced morphine consumption, caused significant decreases in VAS scores, and reduced side effects stemming from opioids. SAP block is an effective, easy-to-apply and safe method to reduce acute pain as part of multimodal analgesia in pain management in thoracic surgeries.

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Meme cerrahisi geçiren hastalarda postoperatif serratus anterior plan bloğunun postoperatif analjezi üzerine etkisi

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ÖZET

Giriş ve Amaç: Bu çalışmada serratus anterior plan bloğunun postoperatif morfin tüketimi üzerine etkisini değerlendirdik. Hem benzer bloklarla hem de bu bloğun uygulanma metodlarında olan farklılıkların hastaların postoperatif ağrı skorlarına ve morfin tüketimlerine etkisini görmeyi ve en etkili yöntemi bulmayı amaçladık.

Gereç ve Yöntem: Bu çalışma elektif şartlarda meme cerrahisi planlanan, ASA I-III, 18-70 yaş aralığında olan gönüllü 40 hastada gerçekleştirilen tek merkezli, prospektif ve gözlemsel bir çalışmadır. Genel anestezi uygulanan toplam 40 hasta 20'şer hasta şeklinde iki gruba ayrıldı. Çalışma grubuna serratus anterior plan (SAP) bloğu uygulanırken kontrol grubuna herhangi bir blok uygulanmadı. İki kas planı arasına 2 ml serum fizyolojik ile test dozu yapıldıktan sonra toplam 40 ml %0,25'lik bupivakain enjekte edilerek serratus anterior plan bloğu yapıldı. Tüm hastalara PCA pompası takılarak postoperatif 12 saat izlendi. Hastaların postoperatif 1, 6 ve 12. saatlerdeki morfin tüketimleri, VAS skorları ve yan etkiler kayıt edildi.

Bulgular: Her iki grup arasında hemodinamik parametreler ve demografik veriler açısından anlamlı bir fark yoktu. Postoperatif morfin tüketimi ve postoperatif analjezik gereksinimi SAP blok grubunda anlamlı olarak daha düşüktü ($p< 0,001$). Yine postoperatif VAS skorları SAP blok grubunda anlamlı olarak daha düşüktü ($p< 0,001$). Blok ilişkili herhangi bir komplikasyon gözlemlenmedi.

Sonuç: Postoperatif uygulanan SAP bloğunun; morfin tüketimini azalttığını, VAS skorlarında anlamlı düşüşe neden olduğunu ve opioidlere bağlı yan etkileri azalttığını bulduk.

Anahtar Kelimeler: Serratus anterior plan bloğu, meme cerrahisi, postoperatif ağrı tedavisi

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