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Results of Local and General Anesthesia in Patients Undergoing Elective Endovascular Abdominal Aortic Aneurysm Repair (EVAR): A Single Center Experience

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Abstract

Objectives: This study aimed to compare the perioperative and postoperative outcomes of elective endovascular abdominal aortic aneurysm repair (EVAR) under general anesthesia (GA) and local anesthesia (LA).

Materials and Methods: This retrospective study included 96 patients who underwent elective EVAR at a single center. The patients were divided into two groups based on the type of anesthesia administered: 48 patients in the GA group and 48 patients in the LA group. Data on demographic characteristics, perioperative factors (such as operation time, blood loss, and contrast volume), and postoperative outcomes (including intensive care unit stay, hospital stay, and complications) were collected and compared between the two groups. The primary focus was on evaluating differences in the operative time, length of hospital stay, and incidence of postoperative complications between the GA and LA.

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Abstract

Results: The total operation time was shorter in the LA group (124.1±22.7 minutes) than in the GA group (136.2±35.3 minutes, p=0.041). The LA group also exhibited significantly lower blood loss (139.5±11.2 mL vs. 181.9±5.1 mL, p<0.001) and used less contrast volume (86.9±19.6 mL vs. 123.0±26.6 mL, p<0.001). Pulmonary complications were more frequent in the GA group (54.2% vs. 10.4%, p<0.001), whereas the LA group had a higher percentage of patients with no complications (50.0% vs. 20.8%, p=0.003). The length of hospital stay was also shorter in the LA group (4.7±0.8 days) than in the GA group (8.7±4.4 days, p<0.001).

Conclusion: LA during EVAR offers significant advantages over GA, including reduced pulmonary complications, shorter operation times, and a shorter length of hospital stay. These findings suggest that LA is a safer and more efficient option for patients undergoing EVAR, particularly those at high risk of pulmonary complications. Further prospective studies are necessary to confirm these results and to guide anesthesia management strategies for EVAR.

Keywords: Anesthesia, endovascular, EVAR, general anesthesia, local anesthesia

Introduction

Endovascular abdominal aortic aneurysm repair (EVAR) has revolutionized the management of abdominal aortic aneurysms, offering a minimally invasive alternative to open surgical repair[1]. The use of EVAR has significantly reduced the perioperative morbidity and mortality associated with aneurysm repair, particularly in patients at high risk for open surgery[2]. However, the choice of anesthesia-whether local or general-remains a critical factor that can influence the outcomes of the procedure. Local anesthesia (LA) is frequently considered in EVAR given its potential to reduce the physiological stress associated with anesthesia, particularly in patients with significant comorbidities[3]. This approach can decrease the risk of hemodynamic instability, minimize respiratory complications, and shorten recovery times, thereby facilitating a faster return to baseline activities[4]. Despite these advantages, LA may pose challenges in terms of patient comfort and procedural duration, especially in complex cases. General anesthesia (GA), on the other hand, provides superior control over airway management and patient immobility, which can be crucial during intricate or prolonged procedures[5]. Although this method ensures a controlled environment and may enhance procedural success, it is associated with risks, particularly in patients with compromised cardiopulmonary function[6]. The physiological impact of GA, including potential cardiovascular stress and prolonged recovery periods, requires careful consideration when selecting the most appropriate anesthetic technique for each patient.

The purpose of this study was to compare the outcomes of local versus GA in patients undergoing elective EVAR at our institution. By examining these results, this study aims to provide insights into the benefits and drawbacks of each anesthetic approach, ultimately guiding the selection of the most suitable anesthesia strategy for different patient profiles.

Materials and Methods

This study was conducted at the Tertiary Training and Research Hospital after receiving approval from the Clinical Research Ethics Committee (approval no.: 2024-03-12, date: 19.02.2024). A total of 96 patients were retrospectively included in the study, spanning a 10-year period. The current study focused on patients who underwent elective endovascular EVAR with either LA or GA.

Patient Selection and Data Collection

Patients who underwent EVAR were retrospectively reviewed, and data were collected regarding the type of

anesthesia (LA) used during the procedures. Demographic data, including age, gender, weight, height, body mass index (BMI), and presence of comorbidities, such as diabetes mellitus, chronic obstructive pulmonary disease (COPD), peripheral artery disease, and coronary artery disease (CAD), were recorded. Additionally, intraoperative parameters such as the type of anesthesia, fluids administered, use of vasodilators (e.g., nitroglycerin), vasopressors (e.g., ephedrine), atropine requirements, arterial and central venous catheterization, duration of surgery, additional surgical interventions, complications, intensive care unit (ICU) stay, and overall hospital stay were documented.

Inclusion and Exclusion Criteria

Patients were included in the study if they met certain criteria, including an abdominal aortic diameter greater than 50 mm for women and greater than 55 mm for men. Additionally, the aneurysm should have originated below the renal arteries, and there should be no occlusion in the iliac arteries. The study also required that patients were willing to undergo surgery, were aged between 50 and 85 years, and did not require any additional abdominal surgery. Patients were excluded from the study if their abdominal aortic diameter was 50 mm for women or 55 mm for men. The exclusion criteria also included aneurysms not originating below the renal arteries, presence of occlusion in the iliac arteries, refusal to undergo surgery, occurrence of abdominal aortic rupture, an age below 50 or above 85 years, and necessity for additional abdominal surgery.

Surgical Procedure

Both femoral arteries were exposed via bilateral groin incisions. Although it is possible to perform the procedure via a single groin incision with percutaneous access to the contralateral limb in certain systems, bilateral femoral exploration is preferred due to the frequent occurrence of vascular complications in EVAR, allowing for more controlled access. After exposing the femoral arteries, a 6- or 7-Fr sheath was inserted into each artery using the Seldinger technique. The decision on which side to deploy the main body and contralateral limb was based on the iliac artery diameters and tortuosity, with the main body typically inserted from the wider, less tortuous iliac artery. A guidewire was advanced, and a marked pigtail catheter was positioned above the aneurysmal segment to visualize the relationship of the aneurysm to the renal and iliac arteries using angiography. Subsequently, the main body of the graft was deployed, followed by the placement of the iliac limbs using the same technique. If necessary, extension grafts were placed in the iliac limbs. A final angiogram was performed to check for any endoleak, which was managed according to its type. In all cases, the graft was successfully opened in the desired location without complications, regardless of the type of anesthesia used. There were no cases of incorrect graft deployment. Typically, femoral artery repair is performed using a 6.0 Prolene suture. In cases of significant atheromatous plaque, the femoral artery is repaired using an interposition with a polytetrafluoroethylene graft. When the iliac artery dissection occurred, the EVAR graft was extended by placing another limb of the graft into the affected side. The EVAR graft was extended to cover the dissected iliac artery.

Postoperatively, all patients were admitted to the cardiovascular surgery intensive care unit, and on the first day, they received 4×1 cc IV heparin. In the following days, patients were administered 100 mg of acetylsalicylic acid daily.

Anesthesia Management

Ninety-six patients participated in the study. All patients underwent standard monitoring with electrocardiography and pulse oximetry. Intravenous cannulation was performed, and appropriate crystalloid solutions were infused. Invasive arterial blood pressure monitoring was achieved via right radial artery catheterization. For general anesthesia, propofol (2 mg/kg), fentanyl (1-2 µg/kg), and rocuronium (0.6 mg/kg). After endotracheal intubation, patients were maintained on mechanical ventilation with tidal volumes of 6-8 ml/kg, fresh gas flow of 2 L/min, and an Fraction of inspired

oxygen of 50% using oxygen and air. The target partial pressure of carbon dioxide was maintained between 35 and 42 mm Hg. Anesthesia was maintained with sevoflurane (0.8-1.1% minimum alveolar concentration) and remifentanil infusion (0.02-2 µg/kg/min). Central venous catheterization was performed using the Seldinger technique in the internal jugular vein, and a bladder catheter was placed for urine output monitoring.

In patients who underwent LA with sedation, the same invasive procedures and monitoring were performed. Sedation was adjusted to achieve a Ramsey sedation score of 4-5, with midazolam (0.03 mg/kg) and fentanyl (0.5 µg/kg) administered intermittently. LA infiltration with lidocaine was administered to the groin region at the incision site. At the beginning of the procedure, 5000 U of heparin was administered intravenously, and anticoagulation was monitored using the activated clotting time (ACT) to maintain ACT at twice the baseline level. Hemoglobin (Hb) levels were maintained above 10 g/dL with replacement therapy as needed.

A combination of lidocaine and bupivacaine was used for LA. Lidocaine, with its rapid onset but shorter duration, was mixed with bupivacaine, which has a slower onset but longer duration of action, in equal volumes. Sodium bicarbonate (1 mL of 8.4% sodium bicarbonate per 10 mL of local anesthetic) was added to the solution to reduce the onset time and burning sensation. The addition of adrenaline extended the anesthesia duration and reduced systemic side effects, although adrenaline was avoided in cases in which its use might induce hypertension (HT) or other adverse effects. We selected LA for patients with pulmonary diseases (such as asthma, COPD), and those with significant comorbidities. This decision was made to reduce mortality and morbidity risks.

The dose limitations of the two anesthetics were independent of each other. The FDA-recommended dose of lidocaine is 7 mg/kg, with a reported maximum dose range of 200-300 mg. The maximum bupivacaine dose was 175 mg. When combined with adrenaline, these values can be increased to 500 and 225 mg, respectively. The maximum doses of both agents can be used together, providing flexibility for bilateral repair. Diluting the agents with saline in a 1:1 ratio also improved the dosing flexibility. Before the initiation of LA, non-invasive blood pressure, electrocardiography, and oxygen saturation monitoring were performed. For optimal surgical conditions, intravenous sedation was added to LA using appropriate doses of midazolam and fentanyl.

Statistical Analysis

The statistical analysis of the data obtained in this study was performed using the SPSS (Statistical Package for the Social Sciences) version 27.0 software. Continuous variables are expressed as mean ± standard deviation, and categorical variables are presented as numbers and percentages (%). The normality of parameters was assessed using the Kolmogorov-Smirnov test. For the comparison of two groups, the Independent Sample t-test was used for normally distributed parameters, while the Mann-Whitney U test was applied for non-normally distributed parameters. A p-value 0.05 was considered statistically significant. The analyses were conducted by comparing the GA and LA groups.

Results

The BMI was significantly higher in the GA group (29.1±3.9) compared to the LA group (27.6±3.6), with a p-value of 0.048, indicating statistical significance. Additionally, there was a higher prevalence of COPD in the LA group (35.4%) than in the GA group (18.8%), with a p-value of 0.066, suggesting a trend toward significance. No statistically significant differences were observed in age, gender, HT, DM, dyslipidemia, pulmonary arterial hypertension, CAD, chronic renal failure, or smoking status between the two groups (Table 1).

There were no statistically significant differences between the general and LA groups regarding preoperative and postoperative Hb levels, preoperative and postoperative creatinine levels, aneurysm sac diameter, neck diameter, or neck length. However, the neck angle in the right-left direction was significantly

greater in the LA group (46.4±7.8 degrees) compared to the GA group (42.6±8.6 degrees), with a p-value of 0.023. Similarly, the neck angle in the anterior-posterior direction was significantly smaller in the LA group (26.7±8.3 degrees) compared to the GA group (30.4±10.9 degrees), with a p-value of 0.002. These differences in neck angles indicate a notable distinction between the groups (Table 2).

The EVAR processing time was significantly longer in the LA group (69.7±15.5 minutes) than in the GA (59.1±23.8 minutes), with a p-value of <0.001. Conversely, the total operation time was shorter in the LA group (124.1±22.7 minutes) than in the GA group (136.2±35.3 minutes), with a p-value of 0.041. Contrast volume usage was significantly lower in the LA group (86.9±19.6 mL) than in the GA group (123.0±26.6 mL), with a p-value of <0.001.

Table 1. Comparison of baseline characteristics between general and local anesthesia groups in patients undergoing EVAR

	General (n=48)	Local (n=48)	p-value
Age (year)	65.2±8.4	66.4±9.7	0.531
Gender	15 (31.3)	20 (41.7)	0.289
BMI (kg/m²)	29.1±3.9	27.6±3.6	**0.048**
HT	26 (54.2)	23 (47.9)	0.540
DM	18 (37.5)	24 (50.0)	0.217
COPD	9 (18.8)	17 (35.4)	0.066
Dyslipidemia	22 (45.8)	26 (54.2)	0.414
PAH	4 (8.3)	7 (14.6)	0.336
CAD	3 (6.3)	6 (12.5)	0.294
CRF	4 (8.3)	2 (4.2)	0.399
Smoke	30 (62.5)	23 (47.9)	0.151

Values are shown as mean ± standard deviation or number (Percentage). Statistically significant results are presented in bold. BMI: Body mass index, HT: Hypertension, DM: Diabetes mellitus, COPD: Chronic obstructive pulmonary disease, PAH: Peripheral artery disease, CAD: Coronary artery disease, CRF: Chronic renal failure

Table 2. Comparison of perioperative hematologic and anatomical parameters between general and local anesthesia groups in patients undergoing EVAR

	General (n=48)	Local (n=48)	p-value
Preop Hb (gr/dL)	12.40±1.12	12.41±0.86	0.935[a]
Postop Hb (gr/dL)	11.24±1.51	11.36±1.2	0.687[a]
Preop Cr (mg/dL)	1.00±0.18	0.96±0.16	0.266[b]
Postop Cr (mg/dL)	1.23±0.55	1.06±0.27	0.454[b]
Aneurism sac diameter (cm)	6.5±0.7	6.5±0.6	0.751[a]
Neck diameter (cm)	2.1±0.2	2.1±0.2	0.523[b]
Neck length (cm)	3.4±0.7	3.2±0.6	0.067[a]
Neck angle (R-L degree)	42.6±8.6	46.4±7.8	**0.023[a]**
Neck angle (A-P degree)	30.4±10.9	26.7±8.3	**0.002[b]**

Values are shown as mean ± standard. Statistically significant results are presented in bold. [a]Independent t-test, [b]Mann-Whitney U test. Preop Hb: Preoperative hemoglobin (grams per deciliter) Postop Hb: Postoperative hemoglobin (grams per deciliter). Preop Cr: Preoperative creatinine (milligrams per deciliter), Postop Cr: Postoperative creatinine (milligrams per deciliter), Aneurism sac diameter: Diameter of the aneurysm sac (centimeters), Neck diameter: Diameter of the aneurysm neck (centimeters), Neck length: Length of the aneurysm neck (centimeters), Neck angle (R-L degree): Right-left degree angle of the aneurysm neck, neck angle (A-P degree): Anterior-posterior degree angle of the aneurysm neck

Blood loss was also significantly lower in the LA group (139.5±11.2 mL) than in the GA group (181.9±5.1 mL), with a p-value of <0.001. The total intensive care time was significantly shorter in the LA group (1.3±0.6 days) compared with the GA group (2.5±1.5 days), with a p-value of <0.001. Similarly, hospitalization duration was significantly shorter in the LA group (4.7±0.8 days) than in the GA group (8.7±4.4 days), with a p-value of <0.001 (Table 3).

There were no intraoperative ruptures in either group. Postoperative pain management predominantly involved opioid use, with slightly higher usage in the LA group (72.9%) than in the GA group (62.5%), although this difference was not statistically significant. In terms of postoperative complications, acute renal failure was significantly more common in the GA group (25.0%) than in the LA group (10.4%), with a p-value of 0.041. Pulmonary complications were also significantly more frequent in the GA group (54.2%) than in the LA group (10.4%), with a p-value of <0.001. Infectious complications were more prevalent in the GA group (45.8%) than in the LA group (25.0%) (p=0.033). There were no significant differences between the groups in terms of hospital mortality, permanent or transient neurological deficits, need for dialysis, distal organ malperfusion, cerebrovascular accident, myocardial infarction, stent migration, spinal cord ischemia, iliac artery dissection, lower extremity embolism, or ischemic colitis. Finally, the incidence of no complications was significantly higher in the LA group (50.0%) than in the GA group (20.8%), with a p-value of 0.003. When spinal cord ischemia developed, the patient's systolic blood pressure was maintained at 100 mmHg with the use of inotropic support if necessary. Upon follow-up, spinal cord ischemia regressed in both patients (Table 4).

At the first postoperative month, computed tomography (CT) angiography results showed that the majority of patients had normal findings, with 87.2% in the GA group and 95.8% in the LA group, although this difference was not statistically significant (p=0.229). There were two cases of Type 1 endoleak in the GA group and no cases in the LA group. Femoral region infections were slightly more common in the GA group (8.5%) than in the LA group (4.2%). By the sixth postoperative month, normal findings were observed in 91.5% and 97.9% of the general and LA groups, respectively, with no statistically significant difference (p=0.530). There was one case each of Type 1 endoleak in both groups, one case of Type 3 endoleak and one pseudoaneurysm in the GA group, and one exitus, all of which were absent in the LA group. At the 12th postoperative month, 97.9% of patients in the GA group and 100% of patients in the LA group had normal CT angiography findings, with no statistically significant difference between the groups (p=0.893) (Table 5).

Table 3. Comparison of procedural and postoperative outcomes between general and local anesthesia groups in patients undergoing EVAR

	General (n=48)	Local (n=48)	p-value
EVAR fluoroscopy time (min)	59.1±23.8	69.7±15.5	**<0.001**[b]
TOTAL operation time (min)	136.2±35.3	124.1±22.7	**0.041**[b]
Contrast volume (mL)	123.0±26.6	86.9±19.6	**<0.001**[a]
Blood loss (mL)	181.9±5.1	139.5±11.2	**<0.001**[a]
Primary endoleak	0.2±.0.7	0.1±0.3	0.165[b]
Total ıntensive care time (day)	2.5±1.5	1.3±0.6	**<0.001**[b]
Hospitalisation (day)	8.7±4.4	4.7±0.8	**<0.001**[b]

Values are shown as number (percent). Statistically significant results are presented in bold. EVAR: Endovascular aneurysm repair, min: Minutes, mL: Milliliters

Table 4. Comparison of intraoperative and postoperative complications between general and local anesthesia groups in patients undergoing EVAR

		General (n=48)	Local (n=48)	p-value
Rupture during operation		0 (0.0)	0 (0.0)	1.000
Postoperative pain managment	Opioide	30 (62.5)	35 (72.9)	0.399
	Paracetamol	13 (27.1)	11 (22.9)	
	NSAID	5 (10.4)	2 (4.2)	
Hospital mortality		1 (2.1)	0 (0.0)	0.315
Permanent neurological deficit		0 (0.0))	1 (2.1)	0.315
Transient neurological deficit		6 (12.5)	5 (10.4)	0.749
ARF		12 (25.0)	5 (10.4)	**0.041**
Need for dialysis		1 (2.1)	1 (2.1)	1.000
Pulmoner complication		26 (54.2)	5 (10.4)	**<0.001**
Infektif complication		22 (45.8)	12 (25.0)	**0.033**
Distal organ malperfusion		1 (2.1)	3 (6.3)	0.132
CVA		1 (2.1)	1 (2.1)	1.000
Endoleak		1 (2.1)	1 (2.1)	1.000
MI		1 (2.1)	1 (2.1)	1.000
Stent migration		4 (8.3)	1 (2.1)	0.068
Spinal cord ischemia		2 (4.2)	0 (0.0)	0.153
Iliac artery dissection		1 (2.1)	1 (2.1)	1.000
Lower extremity embolism		4 (8.3)	2 (4.2)	0.399
Ischemic colitis		1 (2.1)	1 (2.1)	1.000
No complications		10 (20.8)	24 (50.0)	**0.003**

Values are shown as number (percent). Statistically significant results are presented in bold. NSAID: Non-steroidal anti-ınflammatory drug, ARF: Acute renal failure, CVA: Cerebrovascular accident, MI: Myocardial infarction

Table 5. Comparison of postoperative CT angiography findings at 1, 6, and 12 months between general and local anesthesia groups in patients undergoing EVAR

		General (n=48)	Local (n=48)	p-value
Postop 1st month CT angiography	Normal	41 (87.2)	46 (95.8)	0.229
	Type 1 endoleak	2 (4.3)	0 (0.0)	
	Femoral region infection	4 (8.5)	2 (4.2)	
Postop 6th month CT angiography	Normal	43 (91.5)	47 (97.9)	0.530
	Type 1 endoleak	1 (2.1)	1 (2.1)	
	Type 3 endoleak	1 (2.1)	0 (0.0)	
	Pseudoaneurysm	1 (2.1)	0 (0.0)	
	Exitus	1 (2.1)	0 (0.0)	
Postop 12th month CT angiography	Normal	47 (97.9)	48 (100.0)	0.893

Values are shown as number (percent). CT: Computed tomography

Discussion

Significant differences were identified between patients who underwent GA and those who received LA. Notably, although the procedure time was longer in the LA group, the total surgery time was shorter in the GA group. Additionally, the amount of contrast agent used and blood loss were significantly lower in the LA group. Moreover, ICU and hospital stay were significantly shorter in the LA group than in the GA group. Pulmonary complications and infection rates were higher in the GA group, whereas the rate of patients without complications was higher in the LA group. These findings suggest that LA is a less invasive option during the perioperative period, potentially reducing the risk of complications and improving patient outcomes.

The 2021 study by Liu et al.[7] compared the outcomes of EVAR patients undergoing GA, regional anesthesia (RA), and LA, revealing similarities and differences with our findings. In Liu et al.[7] study, the procedure time was significantly shorter in the LA group compared with the GA group; this contrasts with our finding that the procedure time was longer in the LA group. However, both studies found that total surgery time was shorter in the LA group, suggesting that LA may expedite postoperative recovery. Additionally, both studies reported shorter hospital stays in the LA group. Regarding pulmonary complications, Liu et al.[7] found a lower risk in the LA group, consistent with our findings, whereas pulmonary complications were more prevalent in the GA group. In conclusion, Liu et al.[7] study supports our findings that LA may offer advantages in EVAR procedures. The 2022 meta-analysis by Lei et al.[7] compared GA and LA in EVAR and showed that LA may be more advantageous in reducing perioperative mortality in hemodynamically stable patients[8]. This finding is also consistent with our study, in which lower pulmonary complication rates were observed in the LA group. Lei et al.[8] study further supports the notion that LA may reduce pulmonary complications, making it a safer option during the perioperative period. However, the lack of a significant difference in complication rates between GA and LA emphasizes the need for careful selection of the anesthesia method based on patient characteristics.

In the 2018 study by Noh et al.[9], no significant differences were found between the GA and LA groups regarding endoleak incidence, length of hospital stay, and 30-day clinical outcomes. This result contrasts with some aspects of our study; for example, the LA group had a shorter length of hospital stay and fewer pulmonary complications. Although Noh et al.[9] findings suggest similar short-term outcomes between GA and LA, our results indicate that LA may offer certain advantages. In a 2019 study by Harky et al.[10], a comparison of anesthetic techniques used during EVAR was conducted, including three systematic reviews with meta-analyses. One study found statistically significant advantages in mortality, morbidity, and length of hospital stay, thereby favoring local regional anesthesia. However, another study showed no significant mortality benefit from LA. These findings align with our study, in which we also found shorter hospital stays and lower complication rates in the LA group. However, Harky et al.[10] highlighted that some results were not statistically significant, suggesting that heterogeneity among studies may influence outcomes.

A 2019 study by Faizer et al.[11] demonstrated that rEVAR-LA (EVAR performed under LA) was associated with shorter operative times, fewer blood transfusions, lower pulmonary complications, and shorter ICU stays compared to rEVAR-GA (EVAR performed under general anesthesia). Additionally, 30-day and 1-year mortality rates were significantly lower in the rEVAR-LA group than in the rEVAR-GA group. These findings support the advantages of LA as observed in our study and suggest that LA may be more beneficial for the treatment of rAAA. Hajibandeh et al.[12] compared local (LA) and RA with GA in EVAR and found that perioperative mortality was significantly lower in the RA group than in the GA group. The meta-analysis portion of the study also found that LA and RA were associated with lower perioperative mortality and morbidity, as well as shorter hospital stays, compared with GA. These findings align with our study,

in which LA was associated with lower complication rates and shorter hospital stays, further supporting the benefits of LA in EVAR.

Study Limitations

This study has several important limitations. First, our study has a retrospective design, which may introduce certain limitations in data collection and interpretation. Prospective RCTs could provide stronger evidence and enhance the generalizability of our findings. Second, the study was conducted at a single center, which limits the diversity of the patient population and surgical practices. This may restrict the applicability of the results to other centers or broader populations. Third, the choice of anesthesia method in this study was based on patient characteristics and surgeon preference, without randomization. This may have introduced potential bias related to the selection of anesthesia. Lastly, this study did not evaluate long-term outcomes, and there is limited information about the long-term effects of the anesthesia method on patient outcomes. Future studies should aim to address these limitations to obtain more comprehensive and generalizable results.

Conclusion

In conclusion, our study provides significant findings by evaluating the differences between general and LA methods in patients undergoing EVAR. LA offers several advantages, particularly in reducing pulmonary complications, shortening hospital stay, and decreasing total surgery time. However, the procedure time may be longer than that of general anesthesia. LA may be a safer and more effective option, especially in high-risk patient groups, particularly those with pulmonary comorbidities. Nevertheless, the choice of anesthesia method should be individualized, taking into account patient characteristics and surgical requirements. These findings support the preference for LA in EVAR procedures and should be considered in anesthesia management strategies. Future larger-scale prospective studies are essential to confirm these findings and provide clearer guidance on anesthesia management.

Ethics

Ethics Committee Approval: This study was conducted at the Tertiary Training and Research Hospital after receiving approval from the Clinical Research Ethics Committee (approval no.: 2024-03-12, date: 19.02.2024).

Informed Consent: This retrospective study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: Toz H, Kuserli Y, Türkyılmaz G, Bostancı İ, Yücel Yenice T, Aycan Kavala AA, Concept: Toz H, Kuserli Y, Kavala AA, Design: Toz H, Kuserli Y, Türkyılmaz G, Yücel Yenice T, Kavala AA, Data Collection and/or Processing: Toz H, Türkyılmaz S, Bostancı İ, Kavala AA, Analysis and/or Interpretation: Toz H, Kuserli Y, Bostancı İ, Kavala AA, Literature Search: Toz H, Türkyılmaz S, Yücel Yenice T, Writing: Toz H, Bostancı İ, Kavala AA.

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