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SPECIFIC FEATURES OF ANESTHETIC MANAGEMENT IN SIMULTANEOUS SURGERIES FOR VENTRAL HERNIA AND UTERINE FIBROIDS IN OBESE PATIENTS

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✓ ***Resume***

The study evaluated the effectiveness and safety of various anesthesia techniques in obese patients who underwent simultaneous surgical procedures for ventral hernia and uterine fibroids. The research involved 55 patients aged 34 to 60 years. All participants were divided into two groups:Study group (35 patients): Received combined anesthesia consisting of general anesthesia with epidural anesthesia.Control group (20 patients): Received multicomponent general anesthesia without an epidural component.

Key words: Simultaneous surgery, epidural anesthesia, ventral hernia, obesity.

СЕМИЗЛИККА ЧАЛИНГАН БЕМОРЛАРДА ВЕНТРАЛ ЧУРРА ВА БАЧАДОН МИОМАСИ БЎЙИЧА СИМУЛТАН ОПЕРАЦИЯЛАР ВАҚТИДА АНЕСТЕЗИОЛОГИК ЁНДАШУВНИНГ ЎЗИГА ХОС ЖИҲАТЛАРИ

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✓ ***Резюме***

Семизликка чалинган беморларда вентрал чурра ва бачадон миомаси бўйича симултан операциялар вақтида анестезиологик ёндашувларнинг хавфсизлиги ва самарадорлиги таҳлил қилинди. 34 ёшдан 60 ёшгача бўлган 55 нафар бемор текширилди. Барча беморлар 2 гуруҳга бўлинган: биринчи асосий гуруҳ – умумий наркоз билан эпидурал анестезия қўлланган 35 нафар бемор; иккинчи назорат гуруҳи – кўп компонентли умумий наркоз қабул қилган 20 нафар бемор.

Калит сўзлар: Симултан операция, вентрал чурра, семизлик, эпидурал анестезия.

ОСОБЕННОСТИ АНЕСТЕЗИОЛОГИЧЕСКОГО ПОДХОДА ПРИ СИМУЛЬТАННЫХ ОПЕРАЦИЯХ ПО ПОВОДУ ВЕНТРАЛЬНОЙ ГРЫЖИ И МИОМЫ МАТКИ У БОЛЬНЫХ С ОЖИРЕНИЕМ

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✓ ***Резюме***

В настоящее время значительная часть взрослого населения, особенно женщины, страдает от ожирения. Хотя сочетание ожирения, вентральной грыжи и миомы матки встречается относительно редко, анестезиологическое ведение при одновременных операциях у таких пациентов представляет собой уникальные трудности. Влияние ожирения и сопутствующих метаболических нарушений (таких как сахарный диабет, ишемическая болезнь сердца, артериальная гипертензия, заболевания репродуктивной системы и др.) на организм широко изучено в современной литературе (Castro A. V. и соавт., 2014; Shimizu I. и соавт., 2015).

Ключевые слова: одновременная операция, эпидуральная анестезия, вентральная грыжа, ожирение.

Objective

To evaluate the safety and efficacy of different anesthetic approaches in obese women undergoing simultaneous surgical interventions for ventral hernia and uterine fibroids.

Materials and Methods

This retrospective study analyzed anesthetic techniques in female patients treated at the surgical departments of Samarkand State Medical University (SamSMU) multidisciplinary clinic between 2022 and 2024. The cohort included 55 women aged 35–60 years with obesity (BMI ≥30), ventral hernia, and uterine fibroids. Participants were allocated into two groups:Main group (n=35): Received combined general anesthesia with epidural anesthesia (EA).

Control group (n=20): Underwent multimodal general anesthesia without an epidural component.

Results and Discussion

The efficacy of the applied anesthesia techniques was evaluated based on pharmacological protocols, hemodynamic parameters, gas exchange dynamics, cortisol levels (stress hormone), and the maintenance of adequate gas exchange at different stages of anesthesia and surgery. The findings demonstrated that both techniques provided sufficient anesthetic protection for obese patients undergoing simultaneous surgical and gynecological interventions.

Additionally, the study analyzed the onset timelines for ventral hernia and uterine fibroid development. Ventral hernias were observed to manifest within the first three years post-surgery, whereas uterine fibroids typically developed over a longer period, exceeding five years. Data on the timing of hernia occurrence are summarized in Table 1.

Table 1.

Time to Hernia Onset

Time Interval (years)	Group	
	Main group	Control group
1–3 years	6	3
3–5 years	10	6
5–10 years	7	5
More than 10 years	8	2
All	35	20

Most patients postponed surgery for an extended period and sought medical assistance only after their condition worsened and complications developed. Among them, 45 individuals (81.8%) presented with irreducible hernias, while 10 (18.2%) had recurrences. In all cases, hernia defect repair was performed using the tissues of the abdominal wall. However, recurrences occurred within the first year following surgery, indicating that the chosen method of hernioplasty was inadequate.Throughout the treatment process, intra-abdominal pressure levels were dynamically monitored in both patient groups. Analysis of the collected data revealed a consistent increase in this parameter. In the first group, where postoperative analgesia was administered via epidural injection of a local anesthetic (0.5% isobaric solution of bupivacaine), improvements in spirometric indices were observed, along

with milder disturbances in blood gas composition. There was also a noticeable trend towards reduced incidence of pulmonary and hemorheological complications.In contrast, the second group, which received opioid analgesics, experienced excessive sedation, and the quality of postoperative pain relief was deemed inadequate. These patients developed marked hypoxemia within 2–3 days post-surgery, attributed to the formation of microatelectases in the context of mechanical ventilation (MV).

From a theoretical perspective, anesthesia using propofol and isoflurane — both controllable hypnotics—appears most appropriate for early patient mobilization. However, due to propofol's lack of inherent analgesic properties, its administration required fentanyl doses 2–3 times higher than usual. Furthermore, using propofol as the primary hypnotic necessitated the addition of ketamine to offset its hypotensive effects during induction. This also restricted the choice of vegetostabilizing agents (such as droperidol), given their synergistic hypotensive impact on hemodynamics when combined with propofol.

An analysis of anesthesia adequacy criteria revealed a statistically significant decrease in diastolic blood pressure (DBP) from baseline values starting at the second stage of the study in both groups. Additionally, there was a marked increase in SpO_2 and a-vDO_2 levels in both groups. At later stages of the study, no substantial differences were found between the groups concerning these parameters. However, a significant difference in the rate of diuresis was recorded: starting from the second stage and continuing through subsequent stages, patients in the first group exhibited a considerably higher urine output compared to those in the second group (Table 2).

Table 2

Comparative Analysis of Anesthesia Adequacy Indicators in the Study Groups

Analyzed Parameters	**Compared Patient Groups**	**Sequence of the Study**				
		1-й	2-й	3-й	4-й	5-й
MAP, mmHg	Main group	133,6±12,5	138,4±12,5	123,2±8,7	122,6±7,2	123,1±8,3
	Control group	135,3±15,2	141,6±16,1	139,1±17,3	146,1±12,8	137,5±11,9
MAP, mmHg.	Main group.	81,2±10,2	81,8±8,1	75,8±4,8	76,3±5,8	75,3±6,1
	Control group.	88,6±11,2	82,4±12,9	90,5±11,3	87,1±10,1	81,4±9,6
HR, bpm	Main group	75,1±5,7	98,5±4,9*	78,3±8,2	78,8±5,6	77,3±5,1
	Control group.	77,9±8,1	97,8±10,1*	96,9±11,4*	90,6±8,7*	88,7±7,2
BE, mmol/l	Main group	-1,0±0,7	—	-1,7±0,3	—	-2,0±0,2
	Control group.	-1,1±0,3	—	-3,0±0,8*	—	-3,6±0,4*
Diuresis, mean ±SD ml/min	Main group	46,2 ± 2,7	56,4 ± 2,9	58,5 ± 2,8	57,9 ± 2,9	
	Control group	46,2 ± 3,2	47,1 ± 3,5	47,3 ± 3,2	47,6 ± 3,3	
SpO2, %.	Main group	—	96,8±1,7	96,6±2,1	96,9±1,7	97,1±1,4
	Control group	—	95±3,8	94,6±3,4	95,8±2,1	95,6±2,3
Cortisol.	Main group	800-1200	600-800	500-800	550-650	350-650
	Control group.	800-1200	600-800	1100-1800	700-1400	600-800

Note: * – $p<0.05$ compared to baseline values.

1st – baseline values; 2nd – after premedication; 3rd – traumatic stage of the operation; 4th – end of the operation; 5th – first postoperative day.

An analysis of post-anesthesia recovery effectiveness did not reveal statistically significant differences in recovery time after the end of surgery between the groups.

The time to completion of anesthesia was:

- In Group 1 – 12 (8.5–19.5) minutes,
- In Group 2 – 11 (7.5–18) minutes ($p = 0.125$).

Extubation time also did not show statistically significant differences:

- In Group 1 – 14 (8.5–18) minutes,
- In Group 2 – 14 (9.5–19) minutes (p = 0.089).

The time to awakening and achieving 10 points on the Aldrete scale was:

- In Group 1 – 3 (2.5–6.5) minutes,
- In Group 2 – 3.5 (3–7) minutes (p = 0.231).

However, the first ambulation occurred significantly earlier in patients of Group 1 – 186 (135–226) minutes, compared to Group 2 – 213 (144–258) minutes (p = 0.033).The first bowel sounds also appeared significantly earlier in Group 1 – 207 (175–232) minutes, than in Group 2 – 354 (305–441) minutes (p = 0.043).The passage of gas postoperatively occurred earlier in Group 1 – 514.8 (481.7–555.1) minutes, compared to Group 2 – 596.1 (537.1–623.2) minutes (p = 0.039).

Additionally, the length of hospital stay was significantly shorter in Group 1 – 27.3 (18.4–31.3) hours, than in Group 2 – 42.5 (37.8–51.9) hours (p = 0.032).

Conclusions

1. Anesthetic management techniques for obese patients undergoing simultaneous surgeries for ventral hernias and uterine fibroids should be based on the principle of alternating reproduction.

2. The assessment of anesthetic protection effectiveness—taking into account the pharmacological structure of anesthesia, hemodynamic parameters, blood cortisol levels, and adequacy of gas exchange—confirms the advantages of multimodal techniques in combination with epidural anesthesia.

3. One of the key challenges during the induction phase of anesthesia is ensuring airway patency. The combination of epidural and general anesthesia is considered the most effective and safest approach for simultaneous operations for ventral hernias and uterine fibroids in obese patients.

4. Prolonged epidural analgesia in the postoperative period provides effective pain control, promotes early patient mobilization, and reduces the duration of hospitalization, offering additional economic benefits.

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