



Optimization Of Anesthesiological Approach in Recurrent Ventral Hernia in Obesity Patients

**Giyosov Nizomiddin Khomoidin ,
Kurbonov Navruzбек zayniddin,
Rakhmatov Farux Izatillayevich**

Resident of the magistracy of the Department of Anesthesiology and Reanimatology of the Samarkand State Medical Institute. Samarkand, Uzbekistan.

ABSTRACT

This article discusses reliable anesthesia in simultaneous operations. - one of the most important links in the treatment of surgical patients, the severity of surgical stress, methods of regional anesthesia, hypnosis component, artificial ventilation of the lungs, the main function of accompanying surgical anesthesia, almost all common anesthetics and opioids negatively affect on cognitive and psychomotor functions, Application of EA in combination with general onesthesia

ARTICLE INFO

Received: 7th December 2021

Revised: 30th December 2021

Accepted:30th January 2022

KEYWORDS: Ventral Hernias, Abdominal Cavity, Obesity, Epidural Anesthesia

The analysis of the safety and efficacy of anesthetic treatments in obese patients with recurrent ventral hernias has been carried out. Patients undergoing treatment in the departments of general surgery and surgical diseases No. 1 of the first clinic of SamMI were examined for the period from 2018 to 2021. In total, there were 70 obese patients with recurrent ventral hernias aged 18 to 60 years. All patients were divided into 2 groups: the first main group of 40 patients who received general anesthesia in combination with epidural anesthesia. The second control group consisted of 30 patients who received multicomponent general anesthesia.

Relevance. Currently, a significant part of the adult population of economically developed countries suffers from obesity. The number of obese people is progressively increasing. Obesity is recognized by WHO as the new chronic non-infectious "epidemic" of our time. Obesity is becoming an increasingly relevant pathological condition all over the world. The World Health Organization estimates that by 2025 more than 700 million people worldwide will be obese to some degree (WHO, 2013). The influence of obesity and associated metabolic disorders on the human body (diabetes mellitus, chronic heart failure, coronary heart disease, hypertension, disorders of cerebral blood flow and reproductive function, etc.) has received much attention in modern literature (Castro A. V. et al. ., 2014; Shimizu I. et al., 2015). Purpose of the study

To study the safety and effectiveness of anesthetic treatments in obese patients with recurrent ventral hernias.

Material and research methods

The analysis of the safety and efficacy of anesthetic treatments in obese patients with recurrent ventral hernias has been carried out. Patients undergoing treatment in the departments of general surgery and surgical diseases No. 1 of the first clinic of SamMI were examined for the period from 2018 to 2021. In total, there were 70 obese patients with recurrent ventral hernias aged 18 to 60 years. All patients were divided into 2 groups: the

first main group of 40 patients who received general anesthesia in combination with epidural anesthesia. The second control group consisted of 30 patients who received multicomponent general anesthesia.

Evaluation of the results of the preoperative examination.

The effectiveness of the studied anesthesia techniques was assessed according to the structure of the pharmacological scheme, the state of the main parameters of hemodynamics, gas exchange, the level of stress hormone (cortisol), as well as compliance with the conditions for maintaining effective gas exchange at the main stages of anesthesia and surgery.

It was determined that all the anesthesia techniques considered in the work are sufficiently effective in terms of anesthetic protection in obese patients.

However, significant features associated with the administration of anesthesia to patients suffering from overweight were identified.

In both groups, initially, 68 people (97.1%) had arterial hypertension of varying degrees (Table 3.1).

Table 1.

Characteristics of patients in the main and control groups, depending on the degree of arterial hypertension

AH degree	Main group	Control group
Quantity	9	10
%	22.5	33.3
AH grade 1 (140-159 / 90-99 mm Hg)	21	16
AH grade 2 (169-179 / 100-109 mm Hg)	52.5	53.3
AH grade 3 (180/110 mm Hg)	10	4
	25	13.4

Quantity %

AH grade 1 (140-159 / 90-99 mm Hg) 9 22.5 10 33.3

AH grade 2 (169-179 / 100-109 mm Hg) 21 52.5 16 53.3

AH grade 3 (180/110 mm Hg) 10 25 4 13.4

The patients of the main group had high blood pressure values and these indicators were compared with the blood pressure indicators of the control group.

We found out the timing of the appearance of postoperative hernias, and at the same time it turned out that in most of the operated POVH appeared in the first three years after the operation. The timing of the appearance of hernias is given in table 2.

Table 2.

The timing of the appearance of hernias

Timing	Total
Main group	Control group
Up to 1 year	5 4
1 to 3 years	7 3
3-5 years	11 9
5 to 10 years old	9 8
More than 10 years	8 6
Total	40 30

Main group Control group

Up to 1 year 5 4

1 to 3 years 7 3

3-5 years 11 9

5 to 10 years old 9 8

More than 10 years 8 6

Total 40 30

All those who were admitted for a long time did not dare to have an operation, and only after deterioration of their condition and the occurrence of complications, they turned to a surgeon. Of all patients with irreducible hernias, there were 50 (71.4%), restrained 8 (11.4%) and recurrent 12 (17.2%), with recurrent ones operated on once, twice 2, three times 1. In all, plastic hernia orifice was performed at the expense of the abdominal wall tissues and a relapse occurred in the first year after surgery, which indicated an inadequate choice of plastic.

On admission, the size of hernias was determined and at the same time the classification of V.I. Yanov was adhered to. (1978): small (up to 5 cm), medium (5-10 cm), large (10-30 cm) and giant (over 30 cm). Among those admitted with small hernias, there were no patients, with medium ones - 24 (34.3%), with large ones - 35 (50%), and gigantic hernias were found in 11 patients (15.7), their distribution is given in Figure 1.

On admission, the size of hernias was determined and at the same time the classification of V.I. Yanov was adhered to. (1978): small (up to 5 cm), medium (5-10 cm), large (10-30 cm) and giant (over 30 cm). Among those admitted with small hernias, there were no patients, with medium ones - 24 (34.3%), with large ones - 35 (50%), and gigantic hernias were found in 11 patients (15.7), their distribution is given in Figure 1.

In patients of both groups at the stages of treatment, the level of intra-abdominal pressure was measured in dynamics. Based on the data obtained, regular changes in intra-abdominal pressure indicators were revealed in the direction of their increase. Results of the analysis of anesthesia techniques.

In the 1st group of patients, for whom relief of the pain syndrome in the postoperative period was carried out by the introduction of local anesthetics into the EN, there was an improvement in spirometric parameters, and violations of the blood gas composition were much less pronounced. And also a tendency towards a decrease in the frequency of pulmonary and hemorheological postoperative complications was noted. Patients of group 2, who received narcotic analgesics, were in a state of excessive sedation, while the quality after surgical analgesia was lower than sufficient. They had severe hypoxemia within 2-3 days after surgery, which is associated with the formation of microatelectasis against the background of mechanical ventilation. Formally, anesthesia based on propofol, as the most controlled hypnotic, is most consistent with the task of early activation of the patient. But due to the fact that propofol does not have an independent analgesic activity, when using it, additional administration of fentanyl was required 2-3 times more than during anesthesia based on other hypnotic agents. In addition, the use of propofol as the main hypnotic required additional administration of ketamine in order to compensate for the hypotensive effect at the induction stage and, on the other hand, limits the anesthesiologist in the choice of vegetative-stabilizing drugs (droperidol) due to their synergistic hypotensive effect on hemodynamics with propofol.

During the analysis of the criteria for the adequacy of anesthesia in the groups starting from the 2nd stage of the study and at the subsequent stages, a significantly lower level of DBP was recorded in the 1st and 2nd groups in comparison with the initial stage of the study. In addition, a significant increase in the indicators SpO₂, a-vDO₂ was revealed in both groups in comparison with the 1st stage of the study. At further stages of the study, there were no differences between the groups in these indicators, however, there was a difference in the rate of diuresis, which in patients of the 1st group was significantly higher starting from the 2nd and at subsequent stages in comparison with the 2nd group (Table 3).

Table 3. Comparative characteristics of anesthesia adequacy parameters between groups
Study indicators Study groups Study stages

1st 2nd 3rd 4th 5th

BP, mm Hg st Main group 134.8 ± 12.6 138.4 ± 11.5 126.2 ± 9.7 121.6 ± 8.2 122.1 ± 9.3

Control group 137.3 ± 15.2 141.6 ± 16.1 138.1 ± 17.3 148.1 ± 12.8 137.5 ± 11.9

BPd, mm Hg Art. Main group 82.2 ± 10.2 82.8 ± 8.1 76.8 ± 4.8 75.3 ± 5.8 76.3 ± 6.1

Control group 89.6 ± 11.2 82.4 ± 12.9 91.5 ± 11.3 89.1 ± 10.1 82.4 ± 9.6

HR, per min Main group 76.1 ± 5.7 98.5 ± 4.9 * 79.3 ± 8.2 77.8 ± 5.6 76.3 ± 5.1

Control group 72.9 ± 8.1 98.8 ± 10.1 * 97.9 ± 11.4 * 91.6 ± 8.7 * 89.7 ± 7.2

BE, mmol / L Main group -1.1 ± 0.7 - -1.8 ± 0.3 - -2.1 ± 0.2

Control group -1.2 ± 0.3 - -3.1 ± 0.8 * - -3.7 ± 0.4 *

Diuresis, average

± SD, ml / min

Main group 47.2 ± 2.7 58.4 ± 2.9 59.5 ± 2.8 58.9 ± 2.9

Control group 48.2 ± 3.2 48.1 ± 3.5 49.3 ± 3.2 48.6 ± 3.3

SpO₂,%

The main group - 97.8 ± 1.7 97.6 ± 2.1 97.9 ± 1.7 98.1 ± 1.4

Control group - 96 ± 3.8 95.6 ± 3.4 96.8 ± 2.1 96.6 ± 2.3 Note: * - p < 0.05 compared with the initial data. 1st

- initial data; 2nd - after premedication; 3rd - traumatic stage of the operation; 4th - the end of the operation; 5th - one day after the end of the operation;

When studying the effectiveness of post-anesthesia rehabilitation, no significant difference in time after the end of the operation was recorded between patients of the 1st group - 12 (8.5-19.5) minutes and the 2nd group - 11 (7.5-18) (p = 0.125), the time of extubation in the 1st group - 14 (8.5-18) min, in the 2nd group - 14 (9.5-19) (p = 0.089), the time of awakening and reaching 10 points on the Aldrete scale in patients in group 1 - 3 (2.5-6.5) minutes, in group 2 - 3.5 (3-7) minutes (p = 0.231).

The first rise to feet in the 1st group occurred significantly earlier - 186 (135-226) minutes in comparison with the 2nd group - 213 (144-258) minutes (p = 0.033). The first murmurs of intestinal motility in patients of

group 1 appeared significantly earlier than in patients of group 2 - 207 (175–232) and 354 (305–441) minutes, respectively ($p = 0.043$), an earlier onset of gas discharge was also recorded after surgery in the 1st group - 514.8 (481.7–555.1) min compared to the 2nd group - 596.1 (537.1–623.2) min ($p = 0.039$).

In addition, the time of hospital stay in patients of group 1 - 27.3 (18.4–31.3) h was significantly less than in patients of group 2 - 42.5 (37.8; 51.9) h ($p = 0.032$).

Conclusion

Currently, a significant part of the adult population of economically developed countries suffers from obesity. The number of obese people is progressively increasing. Obesity is recognized by WHO as the new chronic non-infectious "epidemic" of our time. 250 million people on the planet (7% of the adult population) are obese. In the United States, 27% of the population is overweight. In Uzbekistan, over the past 20 years, the number of obese people has more than doubled, and significantly more among women than among men. Currently, obesity is registered in the child population 10 times more often than in 1990. In the UK, 43% of men and 29% of women are overweight, 13 and 16%, respectively, are obese. Obesity is often the cause of death (30,000 cases annually).

Obesity is classified using the body mass index (BMI), which is the ratio of body weight in kg to height (kg / m^2). BMI <25 characterizes the normal state, BMI = 25-30 confirms the presence of overweight, with BMI > 30 obesity should be diagnosed, and with BMI exceeding 40, obesity is considered morbid.

The analysis of the safety and efficacy of anesthetic treatments in obese patients with recurrent ventral hernias has been carried out. Patients undergoing treatment in the departments of general surgery and surgical diseases No. 1 of the first clinic of SamMI for the period from 2018 to 2021 were examined. In total, there were 70 obese patients with recurrent ventral hernias aged 18 to 60 years. All patients were divided into 2 groups: the first main group of 40 patients who received general anesthesia in combination with epidural anesthesia. The second control group consisted of 30 patients who received multicomponent general anesthesia. conclusions Anesthetic protection techniques for obese patients, especially for patients with morbid obesity, should also be oriented on the alternating principle of reproduction.

Evaluation of the effectiveness of anesthetic protection by the pharmacological structure of anesthesia, the state of the main hemodynamic parameters, the level of cortisol in the blood and compliance with the conditions for ensuring adequate gas exchange indicates the advantages of multicomponent intravenous techniques in combination with EA.

The main problems during the induction phase of anesthesia are the provision of airway patency. The most effective and safe methods of anesthetic approaches in reconstructive surgery for recurrent ventral hernias in obese patients is considered to be EA with a combination of general anesthesia.

Used literature

1. Le Huu Nho R., Mege D., Ouaïssi M., Sielezneck I., Sastre B. Incidence and prevention of ventral incisional hernia. *J. Visc. Surg.* 2012; 149 (5): 3-14. DOI: 10.1016 / j.jviscsurg.2012.05.004
2. Hernández-Granados P., López-Cano M., Morales-Conde S., et al. Incisional hernia prevention and use of mesh. A narrative review. *Cir Esp.* 2018; 96 (2): 76–87. DOI: 10.1016 / j.ciresp.2018.01.003
3. Yamamoto M., Takakura Y., Ikeda S., et al. Visceral obesity is a significant risk factor for incisional hernia after laparoscopic colorectal surgery: A single-center review. *Asian J. Endosc. Surg.* 2018; 19.doi: 10.1111 / ases.12466
4. Parés D., Shamali A., Stefan S., et al. Predictive factors for extraction site hernia after laparoscopic right colectomy. *Int. J. Colorectal Dis.* 2016; 31 (7): 1323-1328. DOI: 10.1007 / s00384-016-2610-x
5. Silecchia G., Campanile F. C., Sanchez L., et al. Laparoscopic ventral / incisional hernia repair: updated Consensus Development Conference based guidelines [corrected]. *Surg Endosc.* 2015; 29 (9): 2463–84. DOI: 10.1007 / s00464-015-4293-8
6. Khashimov B.B., Outlev K.M., Kruchinin E.V. et al. The incidence of hernias of the anterior abdominal wall in patients with morbid obesity. *Ural Medical Journal.* 2017; 3: 107-110.
7. [Hashimov B.B., Autlev K.M., Kruchinin E.V., et al. The incidence of hernia of the anterior abdominal wall in patients with morbid obesity. *Ural'skij medicinskij zhurnal.* 2017; 3: 107-110. (In Russ)]

8. Hebbard P, Fujiwara Y, Shibata Y, Royse C. Ultrasound-guided transversus abdominis plane (TAP) block. *Anesthesia and Intensive Care* 2007; 35: 616-617.
9. Beloyartsev, F.F. General anesthesia components. M.: Medicine, 1997. [Beloyartsev F.F. Components of General Anesthesia. M.: Meditsina, 1997. (In Russ)]
10. Epshtein S.L. Perioperative anesthetic management of patients with morbid obesity. *Regional anesthesia and acute pain management*. 2012; 4 (3): 5-27.
11. [Ehpshtejn S.L. Perioperative anesthetic management of patients with morbid obesity. *Regionarnaya anesteziya i lechenie ostroj boli*. 2012; 4 (3): 5-27. (In Russ)]
12. Gaston-Johanson F., Albert M., Fagan E., Zimmerman L. Similarities in pain description of four different ethnic-culture groups. *J. Pain Symptom Manage*. 1990; 5 (2): 94-100. DOI: //doi.org/10.1016/S0885-3924(05)80022-3
13. Weiler R.V., Musaeva T.S., Trembach N.V., Zabolotskikh I.B. Critical incidents during combined anesthesia in major abdominal surgeries in elderly and senile patients: the role of preoperative level of wakefulness. *Anesthesiology and Reanimatology*. 2016; 61 (5). DOI: <http://dx.doi.org/10.18821/0201-7563-2016-61-5-352-356>
14. [Vejler R.V., Musaeva T.S., Trembach N.V., Zabolotskih I.B. Critical incidents during combined anesthesia during extensive abdominal operations in patients of elderly and senile age: the role of the preoperative level of wakefulness. *Anesteziologiya i reanimatologiya*. 2016; 61 (5). DOI: <http://dx.doi.org/10.18821/0201-7563-2016-61-5-352-356>. (In Russ)]
15. Likhvantsev V.V. Critical incidents with modern methods of general anesthesia. *Clinical anesthesiology and resuscitation*. 2007; (4): 42.
16. [Lihvancev V.V. Critical incidents with modern methods of general anesthesia. *Klinicheskaya anesteziologiya i reanimatologiya*. 2007; (4): 42 (In Russ)]
17. Anisimov M.A., Gorobets E.S., Yakushina I.A. Effective anesthesia when performing oncogynecological operations in patients with concomitant morbid obesity. *Bulletin of Anesthesiology and Reanimatology*. 2015; 6: 46-52.