

COMBINED SPINAL-EPIDURAL ANESTHESIA FOR HYSTERECTOMY IN GYNECOLOGICAL PATIENTS WITH PATHOLOGY OF THE CARDIOVASCULAR SYSTEM

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ABSTRACT

Among patients in need of surgical treatment, the proportion of elderly people suffering from concomitant diseases, including cardiovascular diseases, is increasing. It is this category of patients that should be given special attention, since even minor hemodynamic and respiratory disorders associated with anesthesia and surgery can cause very serious intra- and postoperative complications [2; 4; 5].

Therefore, the optimization of perioperative management of elderly patients with concomitant cardiovascular diseases is one of the leading areas of research conducted in the world today, and these studies are far from a final solution to the problem.

In this regard, anesthetic protection can play a key role in stabilizing hemodynamics, psycho-emotional status, leveling hemostasis disorders in elderly and senile patients and creating optimal conditions for subsequent rehabilitation measures. Traditional regional methods of anesthesia for operative gynecology, in contrast to general anesthesia, make it possible to effectively block nociceptive impulses directly from the area of the chronic focus of pain, create conditions for preventive analgesia and potentially contribute to the improvement of the psycho-emotional state of patients [1; 2; 3; 5].

Keywords: combined spinal-epidural anesthesia, sedation, epidural catheterization, sensory block, bupivacaine, systemic hemodynamics.

INTRODUCTION

The question of the effect of the anesthesia method on life support systems, homeostasis in gynecological patients with concomitant cardiovascular diseases has not been studied enough, and the data available in the literature are very contradictory, diametrically opposed, which determines the relevance of this study.

The aim of the study was to study the effect of combined spinal-epidural anesthesia on the state of hemodynamics in elderly and senile gynecological patients with concomitant cardiovascular diseases, to identify side effects of hysterectomy operations.

MATERIAL AND METHODS

We analyzed the results of the examination of 30 patients who were treated in the gynecology department of the multidisciplinary clinic of the Tashkent Medical Academy. All patients underwent hysterectomy (14-total hysterectomy and 16-subtotal hysterectomy). Patients ranged in age from 60 to 80 years (mean age 78 ± 8 years) with ASA 3 or higher physical status.

We used the standardized combined spinal-epidural anesthesia (CSEA) protocol used in our clinic. After ECG electrodes and sensors of the resuscitation and surgical monitor YM 300 (Ukraine) and central vein catheterization, we began to study the initial data of the studied blood circulation, pulse oximetry, homeostasis and hemostasis for CVD measurement and induction therapy. In order to prevent thromboembolic complications, low-molecular-weight heparins were administered.

Crystalloid solution (Ringer's 300-400 ml) was started 5-10 minutes before and after spinal anesthesia (SA) at a rate of 6.8 mL/min. Any decrease in systolic blood pressure below 100 mmHg. Despite the infusion load, the infusion load was corrected with a vasopressor (epinephrine, dopamine) and cardiotoxic agents.

Patients were diagnosed with 2 to 6 concomitant diseases, among which CHD with circulatory insufficiency, atherosclerotic cardiosclerosis, stage 2 hypertension with a high risk of cardiovascular and respiratory complications, and arrhythmias prevailed.

Of the existing two CSEA techniques, one-level and two-level, we carried out the last variant in our studies, the principle of which is that CA was performed after catheterization of the epidural space.

Epidural catheterization was performed according to the standard technique and the selected lumbar interval L2 – L3 with the performance of all tests to verify the position of the epidural catheter in the adjacent interval L3 – L4 in the direction opposite to the epidural catheter placed, spinal puncture was performed. After obtaining the cerebrospinal fluid, the required dose of anesthetic was administered. The spinal needle from the Espocan kit (BBraun, made in Germany) was removed together with the mandrel, after which the epidural catheter was fixed.

The mean dose of intrathecally administered 0.5% bupivacaine was 10.0 ± 0.2 mg. Sedation during anesthesia was carried out by intravenous administration of a 1% propofol solution at the rate of 0.3-1.1 mg/kg/hour.

The degree of development of the sensory block was assessed by the pinprick test method on a 4-point scale The degree of development of the motor block was determined by the Bromage method on a 4-point scale.

RESULTS AND DISCUSSION

Table 1 Values of systemic circulation parameters after CSEA and before surgery in patients (n=30).

Time, min	AD system, mmHg	BP diast, mmHg	GARDEN mmHg	Heart rate, min
0 min	140.6±6.5	88.2±3.1	105.6±60,	72.2±8.7
5 min	126,4±4,0 ^x	83.7±2.2	97.9±4.2	70.1±5.3
10 min	119,5±3,1 ^x	79,9±2,1 ^x	93,1±4,0 ^x	66.4±3.7
15 min	117,9±4,0 ^x	76,8±3,0 ^x	90,5±3,7 ^x	65.3±4.1
20 min	120,1±2,7 ^x	77,7±3,2 ^x	91,8±3,9 ^x	67.9±2.7
25 min	136.3±3.2	80,1±2,7 ^x	96.8±4.1	69.1±2.9
30 min	138.7±4.1	83.9±2.9	102.1±3.8	71.2±4.3

Note: x – p <0.05 relative to 0 minutes.

The above data states that in the first 15 minutes all indicators decrease, but not rapidly. In the first 5 minutes of intrathecal administration of 10 mg of 0.5% bupivacaine, 11.1%, 5.2%, and 7.3%, respectively, the decrease in A/Dc, A/DD and SBP occurs as rapidly as possible. By the 15th minute, these decreases were 16.2%, 13% and 14.3%, respectively. From 20 minutes, these indicators began to gradually increase, reaching the initial level by 25-30 minutes. It was interesting that with a decrease in A/D, there was also a decrease in heart rate, which by the 15th minute was 9.6%, the heart rate decreased gradually, despite the fact that this whole picture occurred against the background of pre-infusion of dopamine. From the 20th minute, the heart rate gradually returned to the original values by the 30th minute.

Table 2 Dynamics of CG indicators at the stages of operations in patients (n=30).

Indicators	Stages of the operation and the s/o period					
	Exodus	Beginning of the operation	Joint Implant	End of Surgery	30	60
UI, ml/m2	22.9±0.4	21.8±0.3	22.4±0.4	22.9±0.2	22.7±0.3	22.0±0,
SI, l/m2	1.65±0.07	1.62±0.04	1.70±0.02	1.61±0.03	1.64±0.02	1.54±0.0
OPSS, dyn.cm ⁻⁵	2844±160.2	2974.5±112.6	2559±121.7	2779±97.4	2633±114.0	2871.7±124.3

We see a stable stability in the indicators of one-time and minute performance of the heart. The presented data characterize the hypodynamic mode of blood circulation in patients as a whole. We tried to determine the degree of physical inactivity depending on age.

Table 3 Indicators of CG in the elderly and senile age.

Indicators	Older age	Senility	R
UI, ml/m2	24.3±0.5	21.5±0.3	<0,05
SI, l/m2	1.75±0.04	1.55±0.03	<0,05
OPSS, d.cm ⁻⁵	2681±136.1	3027±104.7	<0,05

The obtained data clearly indicate that the main contribution to the hypodynamic circulatory regime in geriatric patients is made by elderly people. An attempt to reduce the administered amount (intrathecally) of 0.5% bupivacaine solution to 7-8 mg led to a deterioration of almost all parameters of the sensory and motor block, even with an increase in the doses of fentanyl injected into the epidural space, and an increase in the number of side effects. Apparently, fentanyl added to the epidural space with its own pronounced analgesic effect potentiates the effect of the local anesthetic, enhancing its sensory block, but not potentiating it.

RESUME

In combined spinal-epidural anesthesia in gynecological patients with concomitant cardiovascular diseases, intrathecal administration of 10 mg of hyperbaric 0.5% bupivacaine solution 20 µg fentanyl into the epidural space leads to a slight decrease in blood pressure, blood pressure, and SBP. The maximum reduction occurs in the first 5 minutes by 11.1%, 5.2%,

and 7.3%, respectively. Combined spinal-epidural anesthesia provides stability of systemic and central hemodynamics and has an opiodesboric effect.

REFERENCES

1. Semenikhin A. A., Matlubov M. M., Yusupbaev R. B. Two-segmental spinal-epidural anesthesia in abdominal delivery with risk to expand the volume of surgical intervention. – 2010. – T. 4. – №. 2. P. 37-41.
2. Matlubov M. M., Rakhimov A. U., Semenikhin A. A. Combined Spinal-Epidural Anesthesia in Abdominal Delivery // Anesthesiology and Resuscitation. – 2010. – №. 6. P. 71-73.
3. Vodopyanov K. A. Combined Spinal-Epidural Anesthesia in Operations on Lower Limbs in Children // Issues of Traumatology and Orthopedics. – 2011. – №. 1. P. 8-11.
4. Antipin E. E. et al. Early Multimodal Rehabilitation in Abdominal Hysterectomy—Influence on the Postoperative Period. – 2013. – №. 6. P. 37-40.
5. Liu Y., He S., Zhou S. Effect of general anesthesia combined with epidural anesthesia on circulation and stress response of patients undergoing hysterectomy // American Journal of Translational Research. – 2021. – T. 13. – №. 5. – C. 5294.
6. Ibragimov N. K., Ramazanova Z. F., Muralimova R.S., & Nishonov M. R. (2023). THE USE OF REGIONAL ANESTHESIA IN ELECTIVE LAPAROSCOPIC SURGERY IN PATIENTS WITH ABDOMINAL PATHOLOGY. Galaxy International Interdisciplinary Research Journal, 11(6), 324–329.
7. Avakov V.E, Ibragimov N.K., Ramazanova Z.F., & Muralimova R.S. (2022). Multimodal analgesia in the postoperative period in patients with abdominal pathology in the Republic of Uzbekistan. Texas Journal of Medical Science, 15, 170–178.