

About authors:

Bykov Mikhail Ilyitch, Associate professor of the Department of Surgery N 1, Kuban State Medical University;
tel.: +789183596296; e-mail: bikov_mi@mail.ru

Basov Alexander Alexandrovitch, Associate professor of the Department of Basic and Clinical Biochemistry, Kuban State Medical University;
tel.: +79183551302; e-mail: son_sunytch@mail.ru

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ENHANCED RECOVERY AFTER SURGERY IN PATIENTS WITH BODY MASS INDEX OVER 50

Khatsiev B. B., Uzdenov N. A., Kuzminov A. N.

Stavropol State Medical University, Stavropol, Russian Federation

УСКОРЕННАЯ РЕАБИЛИТАЦИЯ ПОСЛЕ ХИРУРГИЧЕСКИХ ВМЕШАТЕЛЬСТВ У ПАЦИЕНТОВ С ИНДЕКСОМ МАССЫ ТЕЛА БОЛЕЕ 50

Б. Б. Хациев, Н. А. Узденов, А. Н. Кузьминов

Ставропольский государственный медицинский университет,
Ставрополь, Российская Федерация

50 patients were included in the study. They were divided according to body mass index (BMI) into two groups: 15 patients with BMI over 50 and 35 patients with BMI below 50. Sleeve gastrectomy for morbid obesity was performed in all patients. Mean operative time was 90±33 minutes in low BMI group and 124±36 minutes in high BMI group ($p<0.01$). Postoperative management did not differ between groups.

Complications occurred in 2 (13.3%) patients with BMI>50 and in 4 (11.4%) patients with BMI<50, $p>0.05$. Mortality was zero in both groups. Mean postoperative in-hospital time was 2.2±0.9 (1 to 4) days in high BMI group and 3.0±2.0 (1 to 9) days in low BMI group, $p>0.05$.

Results of enhanced recovery methods did not revealed any significant differences between high and low BMI groups. We think that results could be implemented in bariatric surgery; however, enhanced recovery for super-obese patients in other non-bariatric procedures needs further investigation.

Key words: bariatric surgery, fast track, enhanced recovery

Обследовано 50 пациентов, разделенных в соответствии с индексом массы тела (ИМТ) на две группы: 15 пациентов с ИМТ свыше 50 и 35 пациентов с ИМТ менее 50. Всем больным выполнялась лапароскопическая продольная резекция желудка. Средняя длительность операции (включая время симультанной операции) составила 90±33 минут в контрольной группе и 124±36 минут в основной ($p<0,01$). Пациенты получали лечение по одинаковой схеме ускоренной реабилитации.

Осложнения возникли у 2 (13,3%) – с ИМТ>50 и у 4 (11,4%) пациентов с ИМТ<50, $p>0,05$. Летальных случаев не было ни в одной из групп. Длительность пребывания пациентов в стационаре составила 2,2±0,9 (от 1 до 4) дней в основной группе и 3,0±2,0 (от 1 до 9) дней в контрольной группе ($p>0,05$).

Результаты применения протоколов ускоренной реабилитации не выявили статистически значимых различий между группами больных с ИМТ ниже и выше 50. Полагаем, что результаты применимы к пациентам со сверхожирением в бариатрической хирургии, однако в других областях хирургии требуются дальнейшие исследования.

Ключевые слова: бариатрическая хирургия, fast track, ускоренная реабилитация

Implementation of the protocols of enhanced recovery after surgery (ERAS) had a significant impact on modern surgery. Its effectiveness is supported by a significant amount of data from different fields of surgery with the strongest evidence in colorectal surgery [3, 4].

Enhanced recovery implies multidisciplinary approach and using standardised protocols of treatment to improve surgical outcomes. There is evidence that enhanced recovery methods decrease hospital stay without increasing complication rate, that is supported by meta-analyses [6, 7, 8].

Moreover, there are publications that support applicability of the enhanced recovery methods in the group of patients with morbid obesity [2, 5]. However, none of the studies compared outcomes of enhanced recovery programs in patients with different stages of morbid obesity.

Our study aims to compare applicability and efficiency of the standardised enhanced recovery methods depending on patients' body mass index (BMI).

Material and Methods. To ensure comparability of the results between groups, we included in the study patients receiving surgical treatment in similar conditions – all patients were operated in a single clinic, single operative theatre by the same surgical and anaesthetist team. We included only patients who underwent laparoscopic sleeve gastrectomy and excluded patients with Roux-en-Y gastric bypass and duodenal switch procedures. Statistical analysis was performed using Stata 12 package, criterion of significance was $p < 0.05$.

During 2013, we performed 52 operations fitting to inclusion criteria. Patients were divided into two groups: 16 patients with BMI 50 were included in the first group («high» BMI); and 36 patients with BMI less than 50 were included in the second («low» BMI).

Mean BMI of the first group was 54.1 ± 4.6 , ranging from 50.3 to 65.8. Mean BMI of the second group was 41.2 ± 4.0 , ranging from 34.3 to 47.2.

Age and sex composition of the groups along with comorbidities and risk factors is described in Table. The high BMI group had more males; otherwise, there were no differences between the groups in terms of age and comorbidities.

Table

Baseline group characteristics

Index	«High» BMI group (n=16)	«Low» BMI group (n=36)	p
Males, %	38	17	<0.05
Mean age, years	38.0 ± 9.1	36.3 ± 8.7	>0.05
Type 2 diabetes, %	13	28	>0.05
Hypertension, %	46	34	>0.05
Smoking, %	33	31	>0.05

33% of procedures in the first group and 14% of procedures in the second group were performed simultaneously with laparoscopic cholecystectomy. Additionally, in 8.3% of procedures in the «low» BMI group, other operations (hernia repair) were performed simultaneously.

Mean operative time (including simultaneous procedures) was 90 ± 33 minutes in the «low» BMI group and 124 ± 36 minutes in the «high» BMI group ($p < 0.01$).

All patients were treated according to the standardised protocol. Patients were admitted in the morning of the operation day. They stopped eating the evening before, but drank carbohydrate beverage (juice or tea with sugar) in the morning. No bowel preparation was performed. Fentanyl and sevoflurane were used for anaesthesia. Surgical drain was placed along the stapler line. At the end of operation all patients received dexamethasone 4 mg and ondansetron 4 mg. Patients were extubated on the operative table and transferred to the general ward. Postoperatively they received ketoprofen, ondansetron, low molecular weight heparin (LMWH). Patients were mobilised 1.5–2 hours after their transfer to the ward. They started clear fluids intake on the next morning. Discharge criteria were drain removal and cancellation of intravenous medications (patients continued receiving LMWH after discharge).

Results and Discussions. We used Clavien-Dindo classification of surgical complications [1] to evaluate not only complication rates, but complication severity as well. According to this classification any deviation from the routine postoperative treatment (or standardised protocol in our case) is considered a surgical complication.

In the «low» BMI group 4 (11.1%) patients had postoperative complications. Two complications were of IIIb stage, staple line leakage, both cases were reoperated, with oversewing and redrainage of the leakage site. In one of the cases oversewing completely closed the leakage (low leakage site), in another case (high site) patient was discharged with gastro-cutaneous fistula that completely healed in three weeks. Two other complications were of IVa stage – massive intraperitoneal haemorrhages with shock, both cases were reoperated with successful laparoscopic haemostasis.

In the «high» BMI group 2 (12.5%) patients had complications (RR 1.1, 95%CI 0.3 – 3.7). Both complications were of the I stage. The first case was self-limited intraperitoneal haemorrhage (200 ml of fresh blood in the drain). In the second case, the patient suffered from abdominal pain in the first hours after the operation, which was managed by a single use of promedol.

There was no mortality in neither of groups. None of the patients was readmitted during the 30 days after the operation.

Hospital stay duration was 2.2 ± 0.9 days in the «high» BMI group (range 1 to 4) and 3.0 ± 2.0 days in the «low» BMI group (range 1 to 9), $p > 0.05$.

We did not aim to analyse long-term outcomes (weight loss and effect on comorbidities) of the implementation of enhanced recovery after surgery, but rather to evaluate complication rates, hospital stay length and readmission risks.

Conclusions. The results of the study did not demonstrate any significant differences be-

tween patients with BMI over or less than 50. Despite low number of participants, we suppose that increasing of the study power will be not able to find differences between groups. Basing on this results, we may also suppose that undifferentiated (on the basis of BMI) implementation of the enhanced recovery protocols does not carry risk increase for postoperative compli-

cations or complication severity in patients with high or extremely high BMI.

However, early humoral mechanisms of action of bariatric surgery limit the study results to the bariatric patients, and the results of enhanced recovery protocols implementation in extremely obese patients in non-bariatric surgery may differ and should be additionally studied.

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About authors:

Khatsiev Bekhan Bayalovich, MD, PhD, deputy director of Clinic of endoscopic and minimally invasive surgery, Stavropol State Medical University, Russia; tel.: +79283211335; e-mail: bkhatiev@yandex.ru

Uzdenov Nauruz Akhmatovich, MD, surgeon of Clinic of endoscopic and minimally invasive surgery, Stavropol State Medical University, Russia; e-mail: bkhatiev@yandex.ru

Kuzminov Alexander Nikolaevich, MD, surgeon of Clinic of endoscopic and minimally invasive surgery, Stavropol State Medical University, Russia; tel.: +79283296633; e-mail: dr.kuzminov@gmail.com

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EXPERIENCE WITH ESMERON IN DAY SURGERY IN CHILDREN

Nasibova E. M., Poluxov R. Sh.

Azerbaijan Medical University, Baku, Azerbaijan

ПРИМЕНЕНИЕ ЭСМЕРОНА В ОДНОДНЕВНОЙ ХИРУРГИИ У ДЕТЕЙ

Э. М. Насибова, Р. Ш. Полухов

Азербайджанский медицинский университет, Баку, Азербайджан

Monomioplegii idea – the use of one drug for the purpose of intubation and maintenance of neuromuscular blockade is an indisputable advantage of the one-day surgery. The authors have shown that the use of muscle relaxant esmeron enables abandon combined mioplegii succinylcholine and non-depolarizing muscle relaxants. The speed of response mioplegii average duration it indispensable in day surgery in children. The authors also note that mioplegii with esmeron more controllable and controlled, its use can significantly reduce the need for patients dekurarization or prolonged assisted ventilation. On the basis of clinical data and TOF-guard monitoring the application of the algorithm esmeron justified in surgical interventions in children.

Key words: esmeron, succinylcholine, one day surgery, children