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Modern view of intra- and post-operative blood loss prevention during hysteroresectoscopy in patients with submucous uterine leiomyoma

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Intrauterine pathology is a complex of diseases, different in etiology and pathogenesis, which are associated with changes in the mucous or muscle membranes of the uterine cavity. In its structure, submucous uterine leiomyoma ranks third with a purity of 6,5%. The introduction of the hysteroresectoscopy method in gynecological practice allowed us to abandon the uterus extirpation in favor of organ-preserving surgery. Since hysteroresectoscopy is an operative intervention, as with any operation, there is a risk of complications. The world statisctics show that the frequency of complications of hysteroscopy varies between 0,4-6%.
The objective: **to reduce the frequency of intraoperative and postoperative blood loss in patients with submucous uterine leiomyoma during hysteroresectoscopy.**
Materials and methods**. 183 women with submucous uterine leiomyoma was performed. Depending on the chosen treatment strategy, the women were divided into two groups: the main group included 76 patients who received the developed advanced diagnostic and treatment complex. The control group included 107 women, whose inpatient management was carried out in accordance with the current quality standards of medical care. In order to determine the amount of menstrual blood loss during the preoperative period and after 3 months in the operative one, all women were given a clinical interview with filling in the pictogram.**
Results**. The average age of studied women was 31,2±0,34 years. The duration of menstrual discharge was in the range of 7 to 10 days and averaged 9,2±0,2 days. More than half of women - 97 (53,0%) used sanitary tampons along with daily pads. The "super-heavy" volume of menstrual blood loss was typical for 10 women (5,3%). The sizes of individual leiomyoma nodes varied between 1,0 and 3,0 cm in diameter (according to the inclusion criteria) and averaged 1,82±0,29 cm, in women with leiomyoma we noted that myomatous nodes were mapped primarily in blue (dense type according to the classification). Against the background of the developed complex, the average size of leiomatous nodes in patients of the main group significantly differed from the average size of nodes in patients of the control group by an average of 66.4% (the main group – 1,62±0,29; the control group-2,44±0,21; p<0.05). Analysis of hysteroresectoscopic intervention shows that in the main group, increased blood loss that required postoperative administration of uterotonic drugs was registered in 6 (7,9%) cases (the control group – 32 (29,9%) (p<0,05).**
Postoperative administration of uterotonic drugs in the main group was performed in 14 (18,4%) cases, while in the control group this value was 4,2 times higher and amounted to 82 (76,6%) cases. The "light" volume of blood loss was noted by 36 (33,7%) women in the control group and 50 (65,8%) women in the main group (p<0,05).
Conclusions**. The use of a two – step approach to intraoperative and postoperative bleeding preventing by applying triptorelin acetate 3,75 mg 28 days before hysteroresectoscopy and terlipresin acetate 0,2 mg 15 minutes before hysteroresectoscopy can significantly reduce the volume of intraoperative (main group – 4 cases (5,3%), control group – 25 cases (23,4%); (p<0,05) and postoperative blood loss (main group – 6 cases (7,9%), control group - 31 cases (28,9%); (p<0,05), reduce the time of endoscopic manipulation; it also reduces the material costs associated with its implementation and also helps prevent postoperative complications.**
Key words: *bleeding, hysteroresectoscopy, intrauterine pathology, intra- and post-operative complications, submucous uterine leiomyoma.*

Сучасний погляд на профілактику інтра- та післяопераційної крововтрати при гістерорезектоскопії у пацієнток з субмукозною лейоміомою матки

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Внутрішньоматкова патологія – це комплекс захворювань, різних за етіологією та патогенезом, які пов'язані зі змінами у слизовій або м'язовій оболонках порожнини матки. У її структурі субмукозна лейоміома матки посідає третє місце з частотою 6,5%. Упровадження гістерорезектоскопії даної методики у гінекологічну практику дозволило відмовитись від екстирпації матки на користь органозберігальної операції. Позаяк гістерорезектоскопія є оперативним втручанням, то, як і за будь-якої операції, є ризик виникнення ускладнень. Згідно з даними світової літератури, частота ускладнень гістероскопії варіюється у межах 0,4–6%.
Мета дослідження: зниження частоти інтраопераційної та післяопераційної крововтрати у пацієнток із субмукозною лейоміомою матки при проведенні гістерорезектоскопії.
Матеріали та методи. Обстежено 183 жінки з субмукозною лейоміомою матки. Залежно від обраної тактики лікування жінки розподілені на: основну групу – 76 жінок, які отримували розроблений комплекс; контрольну групу – 107 жінок, ведення яких виконували відповідно до діючих стандартів якості надання медичної допомоги. З метою визначення об'єму крововтрати під час менструації, у передопераційний та через 3 міс після операції періоди жінкам проводили клінічне інтерв'ю із заповненням піктограми.
Результати. Середній вік обстежених жінок становив 31,2±0,34 року. Тривалість менструальних виділень знаходилась у межах від 7 до 10 днів і в середньому становила 9,2±0,2 доби. Більше половини жінок – 97 (53,0%) разом зі щоденними підкладними використовували й гігієнічні тампони. Для 10 (5,3%) жінок виявився характерним «надтяжкий» об'єм менструальної крововтрати.
Розміри окремих вузлів лейоміоми варіювали від 1,0 до 3,0 см у діаметрі (відповідно до критеріїв включення) і в середньому становили 1,82±0,29 см, у жінок з лейоміомою міоматозні вузли картували переважно синім кольором (щільний тип за класифікацією). На тлі застосування розробленого комплексу середні розміри лейоматозних вузів у пацієнток основної групи достовірно відрізнялись від середніх розмірів вузлів пацієнток контрольної групи у середньому на 66,4% (основна група – 1,62±0,29; контрольна група – 2,44±0,21; p<0,05). Аналіз гістерорезектоскопічного втручання свідчить, що в основній групі підвищену крововтрату, яка вимагала післяопераційного призначення утеротонічних засобів, зареєстровано у 6 (7,9%) випадках (контрольна група – 32 (29,9%); p<0,05).
Післяопераційне призначення утеротонічних засобів в основній групі проводили у 14 (18,4%) випадках, в той самий час у контрольній

групі цей показник був у 4,2 разу вище і становив 82 (76,6%) випадки. «Легкий» об'єм менструальної крововтрати після гістероскопічного втручання відзначали 36 (33,7%) жінок контрольної групи і 50 (65,8%) жінок основної (p<0,05).
Заключення. Використання двоетапного підходу до профілактики інтраопераційної та післяопераційної кровотечі шляхом застосування трипторелін ацетату 3,75 мг за 28 днів до гістерорезектоскопії та терліпресину ацетату 0,2 мг за 15 хв до гістерорезектоскопії дозволяє суттєво знизити об'єм інтраопераційної (основна група – 4 (5,3%) випадки, контрольна група – 25 (23,4%) випадків; p<0,05) та післяопераційної крововтрати (основна група – 6 (7,9%) випадків, контрольна група – 31 (28,9%) випадок; p<0,05), скоротити час виконання ендоскопічної маніпуляції, зменшує матеріальні витрати, пов'язані з його проведенням, а також сприяє попередженню післяопераційних ускладнень.
Ключові слова: *внутрішньоматкова патологія, гістерорезектоскопія, інтра- та післяопераційні ускладнення, субмукозна лейоміома матки, кровотеча.*

Современный взгляд на профилактику интра- и послеоперационной кровопотери при гистерорезектоскопии у пациенток с субмукозной лейомиомой матки

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Внутриматочная патология – это комплекс заболеваний, разных по этиологии и патогенезу, которые связаны с изменениями в слизистой или мышечной оболочках полости матки. В ее структуре субмукозная лейомиома матки занимает третье место с частотой 6,5%. Внедрение гистерорезектоскопии в гинекологическую практику позволило отказаться от экстирпации матки в пользу органосохраняющей операции. Так как гистерорезектоскопия является оперативным вмешательством, то, как и при любой операции, есть риск возникновения осложнений. Согласно данным мировой литературы, частота осложнений гистероскопии варьируется в пределах 0,4–6%.
Цель исследования: снижение частоты интраоперационной и послеоперационной кровопотери у пациенток с субмукозной лейомиомой матки при проведении гистерорезектоскопии.
Материалы и методы. Обследовано 183 женщины с субмукозной лейомиомой матки. В зависимости от выбранной тактики лечения женщины распределены на: основную группу – 76 женщин, получавших разработанный комплекс; контрольную группу – 107 женщин, ведение которых выполняли в соответствии с действующими стандартами качества оказания медицинской помощи. С целью определения объема кровопотери во время менструации, в предоперационный период и через 3 мес после операции женщинам проводили клиническое интервью с заполнением пиктограммы.
Результаты. Средний возраст обследованных женщин составил 31,2±0,34 года. Продолжительность менструальных выделений находилась в пределах от 7 до 10 дней и в среднем составила 9,2±0,2 дня. Больше половины женщин – 97 (53,0%) вместе с ежедневными подкладными использовали и гигиенические тампоны. Для 10 (5,3%) женщин оказался характерным «сверхтяжелый» объем менструальной кровопотери.
Размеры отдельных узлов лейомиомы варьировали от 1,0 до 3,0 см в диаметре (соответственно критериям включения) и в среднем составили 1,82±0,29 см, у женщин с лейомиомой миоматозные узлы картировали преимущественно синим цветом (плотный тип по классификации). На фоне применения разработанного комплекса средние размеры лейоматозных узлов у пациенток основной группы достоверно отличались от средних размеров узлов пациенток контрольной группы в среднем на 66,4% (основная группа – 1,62±0,29; контрольная группа – 2,44±0,21; p<0,05). Анализ гистерорезектоскопического вмешательства свидетельствует, что в основной группе повышенную кровопотерю, которая требовала послеоперационного назначения утеротонических средств, зарегистрировано в 6 (7,9%) случаях (контрольная группа – 32 (29,9%); p<0,05).
Послеоперационное назначение утеротонических средств в основной группе проводили в 14 (18,4%) случаях, в то же время в контрольной группе это значение было в 4,2 раза выше и составило 82 (76,6%) случая. «Легкий» объем менструальной кровопотери после гистероскопического вмешательства отмечали 36 (33,7%) женщин контрольной группы и 50 (65,8%) женщин основной (p<0,05).
Заключение. Использование двухэтапного подхода к профилактике интраоперационного и послеоперационного кровотечения путем применения трипторелина ацетата 3,75 мг за 28 дней до гистерорезектоскопии и терлипрессина ацетата 0,2 мг за 15 мин до гистерорезектоскопии позволяет существенно снизить объем интраоперационной (основная группа – 4 (5,3%) случая, контрольная группа – 25 (23,4%) случаев; p<0,05) и послеоперационной кровопотери (основная группа – 6 (7,9%) случаев, контрольная группа – 31 (28,9%) случай; p<0,05), сократить время выполнения эндоскопической манипуляции, уменьшает материальные затраты, связанные с его проведением, а также способствует предупреждению послеоперационных осложнений.
Ключевые слова: *внутриматочная патология, гистерорезектоскопия, интра- и послеоперационные осложнения, субмукозная лейомиома матки, кровотечение.*

Intrauterine pathology (IP) is a complex of pathological conditions which are different in etiology and pathogenesis and associated with changes in the mucous or muscle membranes of the uterine cavity [1, 2, 3, 5, 17, 22]. A common feature that unites diseases of the uterine cavity is localization of the pathological process that causes a number of common clinical symptoms. However, IP is a heterogeneous group not only in terms of etiology and pathogenesis, but also in terms of the treatment choices, relapses and possible complications prevention [7, 8, 11, 18].

Most often, IP is diagnosed in women with clinical manifestations of abnormal uterine bleeding, infertility and miscarriage [1, 2, 4, 24]. However, there is an evidence of the IP possibility in adolescent girls with juvenile uterine bleeding [4, 24].

Submucosal leiomyoma ranges the third place in the IP structure with the 6,5% of frequency [16, 22]. The modern classification of submucous uterine leiomyoma provides for the following distribution of submucosal nodes: on the pedicle, without an intramural component (0 type), on a broad basis with an intramural component less than 50% (1st type) and 2nd type leiomatous nodes with an intramural component of 50% [16, 22, 24].

The common opinion is the need to remove submucous uterine leiomyoma through its negative impact on reproductive and menstrual function [9, 10, 12, 16]. Removal of submucosal leiomyoma nodes can be done by a mechanical method under the control of hysteroscopy or by hysteroresectoscopy [13, 14].

In recent years, there has been a tendency to increase the number of hysteroscopies for both diagnostic and therapeutic purposes [19, 20]. Hysteroscopy is not only the best option for the diagnosis of intrauterine pathology, including submucous uterine leiomyoma. This manipulation allows for targeted removal of a pathological section of the endometrium or submucosal leiomatous node.

Traditionally, among the advantages of hysteroresectoscopy as an alternative to radical surgical treatment we can note: less trauma, higher cost-effectiveness (in particular, due to a significant reduction in the postoperative bed day, a reduction in the duration of surgery.

Modern hysteroscopy has made significant changes in the uterine leiomyoma treatment. The presence of submucous uterine leiomyoma, accompanied by bleeding, previously had only one method of treatment – hysterectomy. Today it became possible to perform an organ-preserving surgery [6, 15].

Since hysteroresectoscopy is an operative intervention, as with any surgery, there is a risk of complications. Global statistics show that the frequency of complications of hysteroscopy varies within 0,4–6% [6, 15, 23].

Among surgical complications intraoperative and postoperative are the most common ones. Intraoperative complications include uterine perforation, bleeding, gas embolism, thermal damage of internal organs, soft tissue burn in the area of dispersing electrode and deep vein thrombosis of the lower extremities [21, 25].

Postoperative complications include bleeding, infectious-inflammatory complications, intrauterine synechia and hematometra.

Among the anesthetic complications the most common are allergic reactions to the introduction of anesthetics that can even lead to the development of anaphylactic shock. Administration of carbon dioxide can lead to cardiac arrhythmias due to metabolic acidosis and gas embolism which can lead to a fatal outcome [14, 25].

Administration of fluids can lead to the most dangerous complication – fluid overload of the vascular bed due to the fluid absorption which was introduced into the uterine cavity, accompanied by hypervolemia and hyponatremia [25]. Development of pulmonary edema and signs of cerebral irritability: anxiety, confusion, headache and convulsions can be observed.

Infectious and inflammatory complications are the most common and ranges up to 0,6-2,5%. In most cases they occur 2-3 days postoperatively and continue to be one of the urgent problems of the diagnostic and surgical hysteroscopy [14, 25].

At the same time, according to the literature and statistical analysis, the largest percentage of intra – and postoperative complications is associated with bleeding during and after hysteroresectoscopy in patients with submucous uterine leiomyoma [6, 15, 21, 23, 25].

The objective: to reduce the frequency of intraoperative and postoperative blood loss in patients with submucous uterine leiomyoma during hysteroresectoscopy.

MATERIALS AND METHODS

A comprehensive examination of 183 women with submucous uterine leiomyoma was performed. Depending on the chosen treatment strategy, the studied women were divided into two groups: the main group included 76 patients with submucous uterine leiomyoma who received the developed advanced diagnostic and treatment complex at the preoperative stage and the proposed algorithm of management in a gynecological hospital. The algorithm included a single appointment of triptorelin acetate at a dose of 3,75 mg intramuscularly 28 days before the previous hysteroresectoscopy and a single injection of terlipressin acetate at the rate of 0,2 mg o in 10 ml of isotonic solution 15 minutes before performing hysteroresectoscopy paracervically.

The control group included 107 women with submucous uterine leiomyoma, whose inpatient management was carried out in accordance with the current quality standards of medical care of the Ministry of Health of Ukraine. In addition to the generally accepted examination, women in the study groups were offered transvaginal ultrasound and sonoelastographic examinations.

In order to determine the amount of menstrual blood loss during the preoperative period and after 3 months in the operative one, all women were given a clinical interview with filling in the pictogram.

THE RESULTS OF THE RESEARCH AND DISCUSSION

The vast majority of women were between the ages 26 and 40. At the time of surgical treatment, women with leiomyoma were at the reproductive age (18-45 years) and their average age was 31,2±0,34 years.

Chronic abnormal menstrual bleeding, mainly in the form of polymenorrhea, was a characteristic symptom in women with submucosal leiomyoma. Thus, the average duration of menstrual bleeding in women of the examined group was 9,2±0,4 days that was 15% higher than the maximum permissible norm. The average duration of the menstrual cycle in the majority of the surveyed women was within the normal range and 32,2±1,2 days. One of the main reasons for medical care administration was hemorrhagic syndrome which was typical for 88 (48,1%) patients with submucosal leiomyoma. Chronic pelvic pain and increased pain during menstruation (algodismenorrhea) were observed in 56 (30,1%) and 41 (22,4%) women, respectively. 34 (18,6%) women had complaints of dyspareunia. Infertility associated with the presence of submucosal leiomyoma was observed in 66 (36,1%) patients. However, it should be noted a significant percentage of patients who had a combination of several pathological conditions – 122 (66,7%) cases. The asymptomatic course of the disease was detected in 55 (30,1%) patients.

All women in the study group were asked to fill in the «self-assessment icon of blood loss during menstruation", that was filled in daily during menstrual discharge in order to assess the volume of menstrual blood loss using the visual-analog method at the pre-hospital stage. Results of menstrual blood loss self-assessment indicate that the duration of menstrual discharge was in the range of 7 to 10 days and averaged 9,2±0,2 days. More than half of women – 97 (53,0%) used sanitary tampons along with daily pads. Nocturnal pads Size 4 were used by 36 (19,7%) women during the first 4 days of menstrual bleeding. Nocturnal pads Size 2 were used by 24 (13,1%) women. The vast majority were characterized by the use of nocturnal pads Size 3 – 123 (67,2%) women. Contamination of the sanitary tampon type 2 was noted in 45 (46,4%) women who used them additionally. The vast majority of women – 52 (53,6%) noted tampon contamination typical for type 1. The analysis indicates that the vast majority of 87 (47,5%) women with uterine leiomyoma had a volume of menstrual blood loss that corresponds to «severe». The «super-heavy» volume of menstrual blood loss was typical for 10 women (5,3%). Almost half of 86 surveyed women (46,9%) had a volume of menstrual blood loss estimated by us as «average».

During the analysis of transvaginal ultrasound examination results was revealed that the sizes of individual leiomyoma nodes varied between 1,0 and 3,0 cm in diameter (according to the inclusion criteria) and averaged 1,82±0,29 cm. The characteristic feature of leiomyoma nodes in transvaginal ultrasound examination was an M-echo deformation. In this case we paid particular attention to the study of the state of the median uterine structure and acoustic signs of uterine cavity deformation.

Performing ultrasound elastography in women with leiomyoma we noted that myomatous nodes were mapped primarily in blue (dense type according to the classification) in the form of rounded sections against a green background, which mapped elastic normal myometrial tissues. We observed this pattern in 126 (68,9%) of 183 studied women. In other 57 (31,1%) cases leiomyoma nodes were blown either blue with separate green inclusions, or were not subjected to visual classification to any type ($p<0,05$).

As shown in the table 1, the indices of vascularization (VI), blood flow intensity (FI), and perfusion (VFI) of the tumor and unchanged uterine myometrium in the patients of the examined group significantly differed from the to myomatous nodes blood supply ones. Thus, the average values of VI in myomatous nodes

Table 1

Blood flow characteristics of biometrics and submucous node in women with submucos leiomyoma, M±m

Index	Index value in the examined groups, n=183	
	Myometrium	Node
VI	2,2±0,18 *	9,5±0,3 *
FI	0,5±0,1 *	26,3±2,1*
VFI	1,9±0,3	5,1±0,4 *

Note: * – statistically significant differences (p<0,05).

Table 2

Features of hysteroresectoscopic treatment in patients of the study groups

Index	Index value in the examined groups, n	
	Main group, n=76	Control group, n=107
Input fluid volume, l	4,2±0,5	5,7±0,9 *
Blood loss volume, ml	49,6±10,2	100,4±25,7 *
Intraoperative blood transfusion	-	11 (10,2%)
Postoperative haemostatic drugs prescription	6 (7,9%)	32 (29,9%) *
Postoperative uterotonic drugs prescription	14 (18,4%)	82 (76,6%) *

Note: * – statistically significant differences (p<0,05).

were significantly lower than in the unchanged myometry in the I group in 1,7 times; FI – in 1,3 times and VFI – in 2,5 times (p<0,05).

Analysis of the ultrasound examination results in a gynecological hospital immediately before the hysteroscopic intervention shows that against the background of the proposed complex, the average size of the submucous leiomatous node in patients of the main group significantly differed from the average size of nodes in patients of the control group by an average of 66,4% (the main group – 1,62±0,29; the control group – 2,44±0,21; p<0,05). This decrease in leiomatous nodes in patients of the main group led to less deformation of the M-echo, which made it possible to more clearly assess the localization of nodes, the median uterine structure and acoustic signs of uterine cavity deformation.

Reducing the leiomatous nodes size in patients of the main group allowed in 68 (89,5%) cases to identify clearly the uterine wall from which the tumor grows and finally establish the diagnosis of «submucosal uterine leiomyoma», which later, during hysteroresectoscopy, contributed to a decrease in the total time of surgical intervention.

During the elastographic study on the background of developed complex administration we recorded changes in the structure of submucous leiomatous nodes. So, in the vast majority of cases – 59 (77,6%) in women of the main group leiomyoma nodes were blown green with blue fragments (dense type according to the classification). Elastographic picture of women who received the standard algorithm did not have significant differences. In women of the control group, submucous leiomatous nodes were detected in 29 (27,1%) cases (p<0.05).

According to the results of the study, it was found that within 28 days, blood flow in the main uterine vessels significantly decreased, as evidenced by registration at Doppler in all 76 (100,0%) women of the main group.

Analysis of the hysteroresectoscopic intervention shows that in the main group, increased blood loss that required postoperative administration of uterotonic drugs was registered in 6 (7,9%) cases (the control group – 32 (29,9%); p<0,05).

Postoperative administration of uterotonic drugs in the main group was performed in 14 (18,4%) cases, while in the control group this value was 4,2 times higher and amounted to 82 (76, 6%) cases (p<0,05) (table. 2).

During the hysteroresectoscopy, the bleeding from the node bed was recorded in 68 (63,6%) cases in patients of the control group. The application of the additional electrode allowed to achieve hemostasis but not in every case that provided repeated use of oxytocin during surgery. The oxytocin administration contributed to the reduction of the uterus and, as a result, the narrowing of the operative intrauterine space and the difficulty of manipulating with stopping the bleeding, which was accompanied by an increase in the duration of the surgery, and bleeding from the bed of myomatous nodes requiring additional use of running fluid.

The intensity of intraoperative uterine blood loss in patients during submucosal node enucleation, which we estimated as the difference between the volume of fluid injected into the uterine cavity and aspirated from it, correlated with the size of the submucosal myomatous node, its localization in the uterine cavity and its depth in the myometrium.

The smallest intraoperative blood loss was observed during removing the 0 type nodes both in the control (55,2±6,2 ml) and in the main (34,1±3,7 ml) groups (p<0,05).

During the removal of the 1 type nodes, the average blood loss in the control group exceeded the average indexes of the main group by 57,4% and amounted to 92,4±5,6 ml (in the main group – 58,7±5,9 ml; p<0,05). We noted the greatest blood loss during the 2 type node removement, which can also be noted as intermuscular nodes with centripital growth, where 50% of the node volume was located in the myometrium. However, against the background of the developed algorithm, it was possible to reduce the total volume of blood loss. So, in the control group, the average volume of blood loss during removal of this type of nodes was 143,6±7,1 ml, which was 69,1% more than in the women of the main group – 84,9±6,7 (p<0.05).

Blood loss during the surgery on removing nodes of similar localization in women of the main group exceeded the same index when removing myoma nodes of type 0 by 2,4 times, and when removing nodes of type 1 – by 1,4 times. In the control group, where intraoperative bleeding prevention was not used, the latter was more significant and exceeded the same index when removing type 0 myoma nodes by 2,6 times (p>0,05), and when removing type 1 nodes by 1,5 times (p>0,05).

It should be noted that in 11 (10,2%) cases of removal of type 2 nodes, blood loss during surgery exceeded 300 ml, which required blood replacement by blood transfusion.

In all 107 women of the control group, changes in the nature of menstruation were registered after hysteroresectoscopy within 1–2 months after endoscopic intervention. Their duration decreased to 4–6 days and averaged 4,7±0.2 days, the volume of menstrual blood loss decreased; the frequency and severity of dysmenorrhea decreased. For 76 patients of the main group, the normalization of menstrual function was also characteristic after 1–2 months: the duration of menstrual discharge was reduced to 3–5 days, averaging 3,2±0,1 days ($p<0,05$), the volume of menstrual blood loss significantly decreased, and the manifestations of dysmenorrhea were almost absent.

These features of menstrual function are confirmed by the results of self-assessment of the volume of blood loss during menstruation using the icon. Thus, 71 (66,3%) women in the control group reported an «average» amount of blood loss, while in the main group this volume of blood loss was typical for 26 (34,2%) women ($p<0,05$). The «light» volume of blood loss was noted by 36 (33,7%) women in the control group and 50 (65,8%) women in the main group ($p<0,05$). A characteristic fact was the use of one hygiene product during menstrual bleeding – a pad or sanitary tampon.

CONCLUSIONS

The application of the developed algorithm for the management of women with submucous uterine leiomyoma in a gynecological hospital contributed to a significant decrease in the woman's stay in a hospital bed, which was 0,9±0,09 days and was significantly less in comparison with women of the control group – 2,4±0,19 days ($p<0,05$).

The use of a two – step approach to intraoperative and postoperative bleeding preventing by applying triptorelin acetate 3,75 mg 28 days before hysteroresectoscopy and terlipresin acetate 0,2 mg 15 minutes before hysteroresectoscopy can significantly reduce the volume of intraoperative (main group – 4 cases (5,3%), control group – 25 cases (23,4%); ($p<0,05$) and postoperative blood loss (main group – 6 cases (7,9%), control group – 31 cases (28,9%); $p<0,05$), reduce the time of endoscopic manipulation; it reduces the material costs associated with its implementation and also helps prevent postoperative complications.

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