



RESULTS OF THE ANALYSIS OF MATERNAL MORTALITY ASSOCIATED WITH OBSTETRIC BLEEDING ACCORDING TO THE CONFIDENTIAL REPORT OF CRITICAL CONDITIONS

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✓ Resume

The article highlights the main data in conducting a confidential investigation of maternal mortality in recent years. The main causes of maternal mortality from obstetric hemorrhage are reflected. In particular, the role of risk factors, the role of the infusion program and methods of surgical hemostasis are described. Recommendations for the prevention and treatment of bleeding in the latest studies of evidence-based medicine are given.

Key words: obstetric bleeding, maternal mortality, infusion program, blood transfusion, cesarean section, multiple organ failure.

AKUSHERLIK QON KESHISH BILAN BOG'LIQ ONLAR O'LIMINI TAHLIL NATIJALARINING MAXFIY HISOBOTI

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Maqolada so'nggi yillarda onalar o'limi bo'yicha konfidensial (maxfiy) tekshirishning asosiy ma'lumotlari yoritilgan. Akusherlik qon ketishidan onalar o'limining asosiy sabablari aks ettirilgan. Xususan, xavf omillarining roli, infusion dasturning roli va jarrohlik gemostaz usullari tasvirlangan. Dalillarga asoslangan tibbiyotning so'nggi tadqiqotlarida qon ketishini oldini olish va davolash bo'yicha tavsiyalar berilgan.

Kalit so'zlar: akusherlik qon ketish, onalar o'limi, infusion dastur, gemotransfuziya, kesarcha kesish, ko'p a'zolar etishmovchiligi.

РЕЗУЛЬТАТЫ АНАЛИЗА МАТЕРИНСКОЙ СМЕРТНОСТИ СВЯЗАННЫХ С АКУШЕРСКИМ КРОВОТЕЧЕНИЯМ ПО ДАННЫМ КОНФИДЕНЦИАЛЬНОГО ОТЧЕТА КРИТИЧЕСКИХ СОСТОЯНИЯ

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✓ **Резюме**

В статье освещены основные данные при проведении конфиденциального расследования материнской смертности за последние годы. Отражены основные причины материнской смертности от акушерских кровотечений. В частности, описана роль факторов риска, роль инфузионной программы и методов хирургического гемостаза. Даны рекомендации по профилактике и лечению кровотечения в последних исследованиях доказательной медицины.

Ключевые слова: акушерское кровотечение, материнская смертность, инфузионная программа, гемотрансфузия, кесарево сечение, полиорганная недостаточность.

Relevance

A critical condition, which is obstetric bleeding, is always associated with a shortage of time, which makes it difficult to choose the optimal tactics. The success of critical case management lies in the strict adherence to the treatment algorithm by the multidisciplinary team in the first hours of bleeding, as well as periodic audit of these cases to improve the quality of care. Despite the presence of known risk factors, it is generally recognized that postpartum haemorrhage (PPH) can occur in any woman, and this will require strict adherence to all elements of a standardized protocol for the management of PPH [1,4]. Maternal mortality (MM), which subsequently occurred from bleeding, has a leading position in the world and in particular, in Uzbekistan (the cause of 36% of MM according to the Ministry of Health of the Republic of Uzbekistan in 2019). Despite the developed and adopted guidelines, protocols for the treatment and prevention of bleeding, MM, which subsequently occurred from bleeding, does not decrease. Obstetric bleeding is characterized by suddenness and a high rate of blood loss, which, with reduced adaptive capabilities of the body of the woman in labor against the background of somatic diseases and pathology of pregnancy, contributes to the rapid development of coagulopathy, shock phenomena and multiple organ failure [3,5,9].

According to the analysis of the causes of MM, the issues of qualification of personnel, the organization of multidisciplinary care, the use of extracorporeal methods of treatment, the provision of blood products, the defects of which lead to the loss of a temporary factor that plays a key role in the survival of the patient [17], remain relevant for many years. WHO experts point to a sharp decrease in the survival of a patient with massive blood loss with a slowdown in care within 40 minutes [16].

Confidential analysis of maternal mortality (CMM) (order of the Ministry of Health of the Republic of Uzbekistan No. 423 of 4.08. 2009) and annual analysis of maternal mortality under order No. 283 of "On measures to reduce the mortality of pregnant women, women in labor and puerperia's in the Republic of Uzbekistan" reveal the same errors from year to year. They say that the standards and protocols of treatment are not always effective, and this is due not only to the lack of knowledge of the protocols, but also to other objective reasons: the lack of a doctor who can perform hysterectomy and ligation of the great vessels, the lack of blood products in sufficient volume, the lack of specialists of the multidisciplinary team who can bring the patient out of a state of multiple organ failure. The protocols for the treatment of bleeding, which are created most often in the leading countries of the West [11], do not take into account such features of Uzbekistan as a high birth rate, a low health index, the predominance of the rural population and childbirth in most cases in district medical associations, the distance between some medical institutions, the lack of sufficient material and technical means at primary care to combat obstetric bleeding.

The purpose of the study. Confidential analysis of maternal mortality from obstetric haemorrhage.

Materials and methods

This report conducted a confidential analysis of 77 birth histories that ended in maternal mortality from obstetric haemorrhage for the period 2018-2020 in the Republic of Uzbekistan. The age of the deceased women was: 18 - 25 years - 21 women (27%), 26 - 30 years - 28 women (36.3%), 31 - 35 years - 16 women (20.7%), 36 - 40 years - 12 women (15.5%), 40 and more - 2 women (2.5%). The main age group of the deceased was 18-25 years (27%) and 26-30 years (36.3%).



Results and discussion

In 96% (74) of cases in women, those who died of obstetric bleeding were registered. Only 3 women during pregnancy were not registered for antenatal care (4%). In antenatal care, pregnant women were observed in 52 (68%) cases of GP, and in 24 (32%) cases obstetrician-gynecologists. Social status of women who died of bleeding: housewives - 53 (68%) women, employees - 24 (31%).

When analyzing the birth histories, the following data were obtained: parity of women who died from bleeding (Figure 1): 1 birth - 19 women (24.6%), 2-3 births - 42 women (54.5%), 4 and more births - 16 women (20.7%).

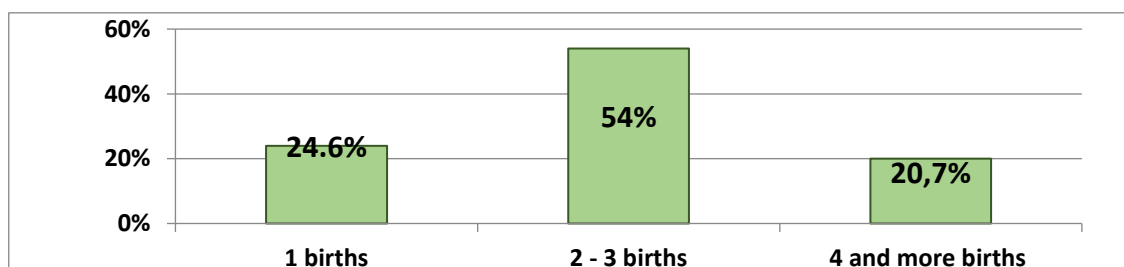


Figure 1. Parity of dead women from obstetric bleeding.

Most of the deaths were multiparous (54%), primiparous were 24.6%. At parity, almost half of the women who died from bleeding were multiparous 54% and 4 or more births were in 16 women (20%).

In the analysis of gestational age, 47% of cases of childbirth occurred at full term (Figure 2).

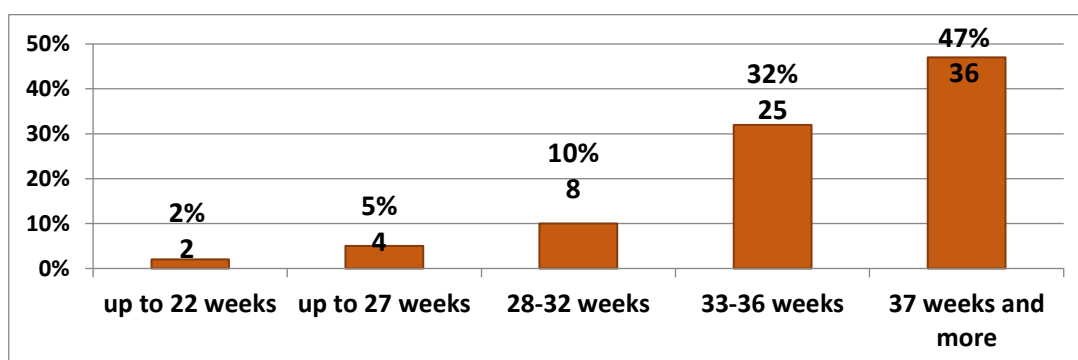


Figure 2. Gestational duration of delivery of deceased women from bleeding.

Place of delivery and death of women from bleeding: women who died of bleeding were delivered in institutions of the 1st unit. The bulk of deaths occurred in district medical associations - 58% and regional perinatal centers - 31.8%, in the Republican Scientific Center for Emergency Medical Care (RSC EMC) and branches - 4%, in the Republican Perinatal Center (RPC) and the Republican Specialized Scientific and Practical Center for Obstetrics and Gynecology (RSSPCOG) and branches - 6% (Figure 3).

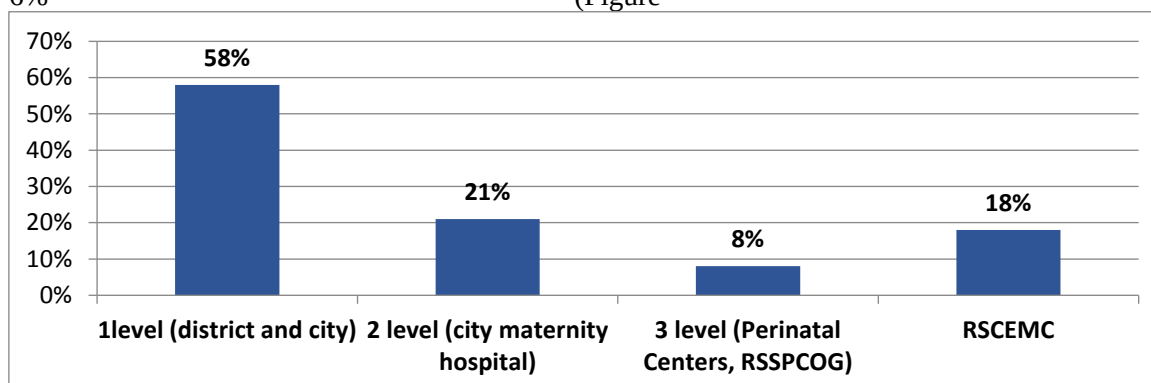


Figure 3. Place of delivery of women who died of bleeding.

To higher levels after childbirth are transferred: from the 1st level to the Republican and district centers of emergency medical care - 16 women (20%) to hemodialysis, which indicates inadequate infusion therapy during bleeding, from the 1st level to the central district hospital - 2 (2.5%) women, from the 2nd level to the 3rd level was transferred 2 women (2.5%).

Place of death of women: of the 1st level - 58% (44 women), 2nd level - 16% (23 women) and 6% (5 women) - of the 3rd level, 18% (14) women in the district and city center of emergency medical care, 2% (2) women in the Republican Center for Emergency Medical Care. In a gestational period of up to 36 weeks, childbirth in women who died of bleeding occurred in 51% (40) of women.

The structure of bleeding showed that in 58% of women the cause of death was premature detachment of the normally located placenta and coagulopathic bleeding, in 25.5% - atonic bleeding, 6% - ruptures of the uterus. It is also noted that in 16% there is a discrepancy between the diagnosis of medical history and the clinical picture, the situation is summed up under the diagnosis of embolism by amniotic fluid and PE, while the clinical course of thanatogenesis indicates excessive bleeding. Many experts also note that in 15% of the causes of maternal mortality there is a discrepancy between the diagnosis of the medical history and the clinical picture revealed by reviewers. Many situations are brought under the standard diagnosis of amniotic fluid embolism and PE, while the clinical course of thanatogenesis indicates extreme bleeding, which also makes it difficult to identify the true causes of maternal mortality.

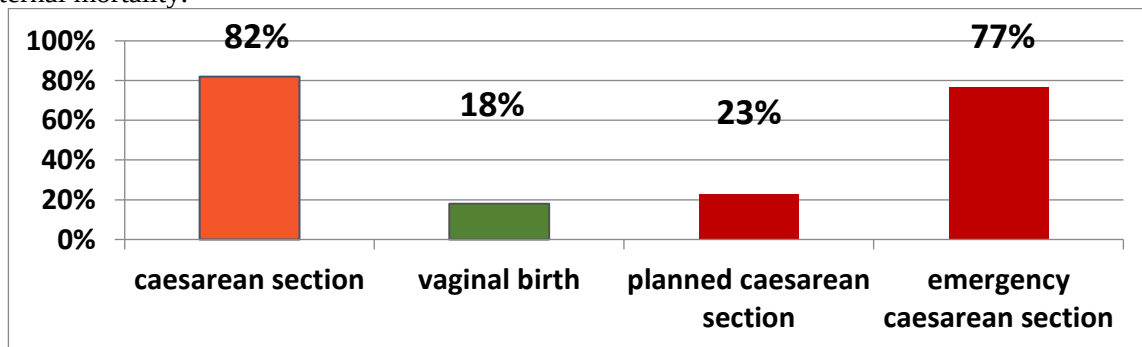


Figure 4. Methods of delivery of women who died of bleeding.

63 (82%) of women are delivered by caesarean section, and 13 (18%) of women are delivered through the natural birth canal. An emergency caesarean section was performed on 59 (77%) women and a planned caesarean section on 15 (23%) on patients (Figure 4).

Indications for a planned cesarean section were: 1 scar on the uterus - 5 cases, 3 scars on the uterus - 4 cases, 2 cases - severe preeclampsia (Table 1). During vaginal childbirth, the causes of bleeding were: rupture of the uterus - 3 cases, uterine atony - 5 cases, hematoma of the vagina - 3 cases, ingrowth of the placenta - 2 cases. In vaginal childbirth, a common cause of postpartum bleeding was uterine atony. If we analyze women with uterine atony, then 77% of them are multiparous (4 or more births) in 31 - 35 years. By volume of blood loss: blood loss of the 2nd degree - 2 cases, 3 degrees - 7 cases, 4 degrees - 11 cases. According to the records in the birth histories, it was difficult to determine the amount of blood loss in 6 cases.

Table 1. Indications for emergency caesarean section.

№	Diagnosis	Case	%
1	Premature abruption of a normally located placenta	42	54
2	Scar on the uterus + Premature abruption of the normally located placenta	6	8
3	Premature abruption of the normally located placenta + severe hemorrhagic shock	6	8
4	Condition after eclampsia + Premature abruption of a normally located placenta	1	1
5	Pelvic-cephalic disproportion	1	1
6	Placenta previa + scar on the uterus	5	6
7	Uterine rupture	4	5
8	Severe preeclampsia, acute fatty hepatosis of pregnant women	2	2

The following lessons were learned in the analysis of maternal deaths from haemorrhage:

It is necessary to take into account the antenatal risk factors for bleeding to draw up a birth plan. In 79% of the women who died from bleeding, they were delivered in institutions of the 1st and 2nd level. Of the 24 women with preterm birth, 16 women (66%) gave birth in a level 1 or 2 facility. There is room for improvement in the routing of pregnant women at the antenatal level by general practitioners or primary care obstetricians: 48% (24) of women who died of bleeding at the district level had risk factors that could be an indication for referral and transfer to a higher level of care. These were such risk factors as severe preeclampsia, 2 or more scars on the uterus, central placenta previa, multiple births, somatic pathology, multiple births. With the timely referral or transfer of these women to higher-level facilities where additional staff are available for timely monitoring and emergency care, a multidisciplinary team, the necessary equipment and medicines, the possibility of emergency operations, the possibility of timely delivery of erythrocyte mass and freshly frozen plasma, it is possible that these outcomes could have been avoided. In 45% (22) of the women who died of bleeding were multiparous, of which 9 women gave birth in a level 1 institution. At primary care, an obstetrician-gynecologist or general practitioner should assess each pregnant woman for a risk factor for bleeding and refer them for delivery to a level 2 or 3 institution to provide perinatal care in accordance with the risk, directly bypassing the territorial institution of the 1st level.

If a woman with bleeding risk factors is admitted to a level 1 facility and if there are no emergency indications for delivery, these pregnant women should be referred to a level 2 or 3 facility according to the risk. Clinicians should be aware of antenatal and intranal risk factors, and the management of pregnancy and childbirth should be modified according to the risk factors.

Long-term conservative therapy for postpartum hemorrhage was noted in 47 cases (61%), both after vaginal birth and after cesarean section.

With the onset of diagnosis of postpartum haemorrhage, emergency care should include four components that must be carried out simultaneously [10]:

- good communication with all relevant specialists of the multidisciplinary team,
- intensive therapy of bleeding,
- observation and examination,
- stopping bleeding.

During the analysis of maternal mortality cases, the following ***causes of delayed hemostasis*** were identified:

1. Insufficient timely notification of the multidisciplinary team, delayed involvement of senior specialists and surgeons, anesthesiologists-resuscitators, transfusiologists (14 cases).

2. Underestimated blood loss (33 cases).

3. Insufficient monitoring of the condition of the pregnant woman / puerperal and delayed diagnosis of massive bleeding (12 cases).

In the first minutes of bleeding, it is necessary to notify and call a multidisciplinary team: the 2nd obstetrician-gynecologist and the 2nd midwife; call an anesthesiologist-resuscitator, nurse-anesthetist, transfusiologist (if any) and laboratory doctor (if any), in case of massive bleeding, inform the administrator of the institution, if necessary, call the resuscitation and advisory team. Each institution must have a local algorithm approved by the order of the head of the institution to notify the multidisciplinary team.

Diagnosis of massive blood loss.

• In an earlier diagnosis of massive obstetric bleeding, the mnemonic "**Rule of Thirty**", which is based on the following criteria, can contribute:

- the volume of blood loss is 25-30%, shock of moderate severity;
- Heart rate increases > by 30 beats / min.;
- NPV > 30/min;
- systolic blood pressure is reduced by 30 mm Hg. Art.;
- urine excretion < 30 ml / h;
- reduction of hematocrit < 30%.

• With a positive assessment of the mnemonic "**Rule of Thirty**", you can start intensive therapy according to the "**Rule of Four**" (proposed as a scheme for better memorization):

- 4 therapeutic doses of erythrocyte mass + tranexamic acid;

- + 4 therapeutic doses of freshly frozen plasma;
- + 10 therapeutic doses of cryoprecipitate;
- + recombinant factor VIIa (with the ineffectiveness of other methods of therapy).

The ineffectiveness of each of the measures to stop bleeding is an indication for an immediate transition to the next stage: from conservative methods to surgical, to surgical hemostasis. The main manipulations and operations to stop bleeding are (Figure 5):

- Suturing of soft tissue injuries
- Manual examination of the uterine cavity
- Controlled balloon tamponade of the uterus
- Ligation of the uterine arteries
- Compression sutures on the uterus
- Ligation of the internal iliac arteries
- Hysterectomy.

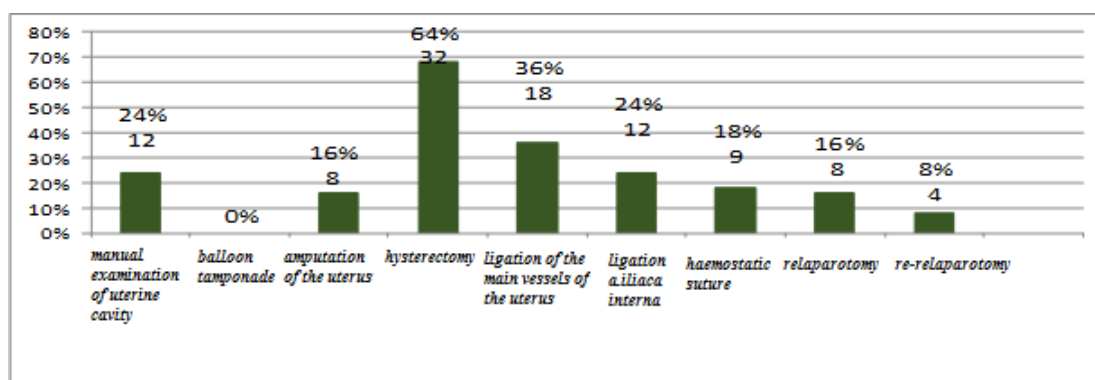


Figure 5. The volume of surgical interventions in deceased women from bleeding.

Table 2. Manipulations of the 1st stage (carried out simultaneously).

Manipulation	Measure to stop bleeding
Catheterization of 2 peripheral veins with catheters >16 G	Examination of the vulva, vagina, cervix and suturing of ruptures of the soft birth canal if any
Inhalation administration of oxygen	Laparotomy and suturing of uterine rupture in the presence of
Bladder catheterization (permanent catheter)	Manual examination of the postpartum uterus, removal of remnants of placental tissue and clots
Monitoring of vital functions (blood pressure, pulse, respiration, oxygen saturation level in the blood, diuresis) every 15 minutes	External massage of the uterus
Ensuring the warming of the patient and maintaining normothermia: intravenous administration of warm crystalloid solutions (warmed to 35-40C)	Compression of the aorta
Uterotonic therapy	Bimanual compression of the uterus
Intravenous slow administration of tranexamic acid 15 mg / kg	Balloon tamponade of the uterus

From 10 to 20 minutes from the onset of bleeding must be performed:

- Continue all manipulations of the 1st stage.
- The 1st line intervention for women in whom uterine hypotension is the cause of bleeding, according to the literature, is balloon tamponade of the uterus. However, due to the lack of cylinders in our country, this intervention was not applied.

Literature data show the effectiveness of balloon tamponade of the uterus in uterine atony up to 91% [3].

According to our national obstetric standards, surgical hemostasis should be started with a blood loss volume of 1500 ml, this often leads to the fact that doctors delay laparotomy and surgical

hemostasis until blood loss is estimated at 1500 ml. With massive blood loss exceeding 25-30% of the circulating blood volume, surgery should be performed no later than 20 minutes [11].

Surgical hemostasis includes staged hemostasis (ligation of uterine, uterine vessels, ligation of the internal iliac arteries, imposition of compression sutures, hysterectomy). If it is impossible to ensure the principle of phased surgical hemostasis (in obstetric hospitals of I and II level), hysterectomy should be performed as quickly as possible, as an effective method of stopping bleeding. Surgical treatment should be started in any conditions - hemorrhagic shock, DIC syndrome, etc. and no circumstances should prevent surgical stopping of bleeding. Obstetric hospitals of any level (from the first to the third) should be ready to provide emergency surgical care and ensure conservative hemostasis [2,6,7,8].

Underestimation of blood loss, underestimation of the amount of blood loss leads to an incorrect calculation of infusion therapy, to an incorrect assessment of the situation, a delay in making a decision on the transition to the next stage of treatment. Normal indicators of the shock index after childbirth are 0.7-0.9. In massive obstetric bleeding, the shock index >1.0 can be used to assess blood loss and to predict the need for transfusion of blood products. However, clinicians should be aware that a physiological increase in circulating blood volume during pregnancy means that signs of hypovolemic shock become less sensitive during pregnancy. During pregnancy, the pulse and blood pressure are usually maintained within normal limits until blood loss exceeds 1000 ml; tachycardia, tachypic and small recorded drop in systolic blood pressure occur with blood loss of 1000-1500 ml.

The shock index (heart rate / systolic blood pressure) is an early marker of hemodynamic disorders and better than other parameters allows you to identify women at risk of adverse outcomes. Normal indicators of the shock index in obstetrics are 0.5–0.9. In obstetric bleeding, the shock index >1 , indicates the need for transfusion of the erythrocyte mass and freshly frozen plasma [2,10].

Among the indications for cesarean section, which led to relaparotomy, premature abruption of the normally located placenta (33.3%) prevailed against the background of hypertensive disorders with coagulopathy. A characteristic feature of the first operation in cases of relaparotomy was the lack of use of compression-cross-linking technology.

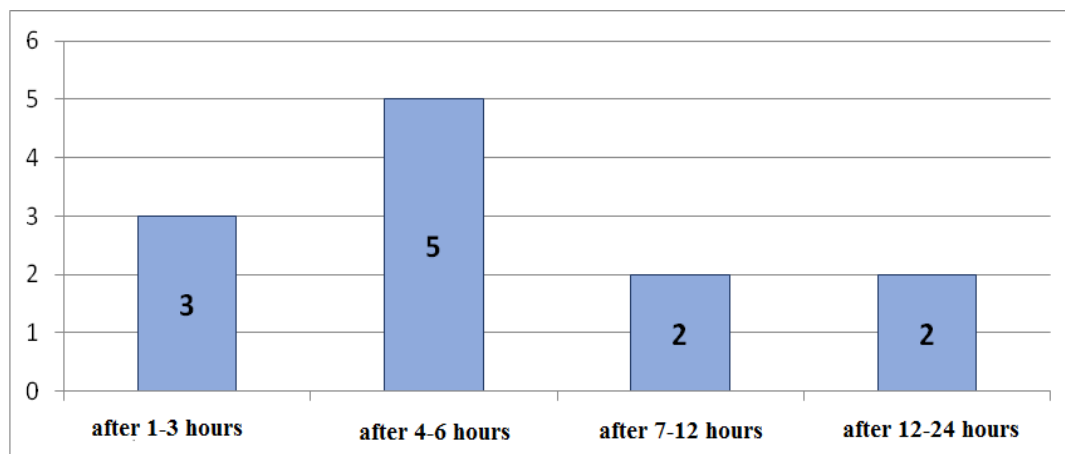


Figure 6. Time for relaparotomy after cesarean section for bleeding.

Incorrect tactics (inadequate choice of uterotonics, their doses, lack of use of compression-cross-linking technology), which led to atonic external bleeding, was an indication for relaparotomy in 32.3% of cases. Internal bleeding, more often associated with technical errors and the development of coagulopathy, served as an indication for relaparotomy in 44.1% of cases. In 23.5%, the indications for relaparotomy were other, in particular septic complications. The algorithm for managing patients with suspected intra-abdominal bleeding in the postpartum period **ensure timely transfusion of blood products**.

Depending on the severity of blood loss, the main intensive care measures are distinguished (Table 3).

Table 3. The amount of blood loss and tactics.

Definition	Criteria	Tactics
Permissible	0.5% of body weight	Active management of the third period of labor - antifibrinolytics (tranexamic acid) only with high risk factors.
Pathological	In childbirth more than 500 ml With a CS of more than 1000 ml	Stopping bleeding with conservative methods or surgical treatment. Infusion therapy. Blood components according to indications (with continued bleeding, with 2-3 degrees of blood loss, with laboratory control). Antifibrinolytics.
Critical	More than 30% of BCC. BCC more than 150 ml/min loss more than 50%. BCC in 3 hours More than 1500-2000 ml blood loss.	Surgical treatment. Infusion therapy. Blood components are used without fail (massive transfusion protocol). Antifibrinolytics. Coagulation factors and their concentrates.

Findings

Thus, in the analysis of maternal deaths, it was found that in 11 cases there was a delay in blood transfusion due to problems in the delivery of blood products. Finding and delivering blood products at night remains a challenge for obstetricians-gynecologists, as no other specialty has such massive bleeding requiring massive hemotransfusions as in obstetrics. With massive, critical blood loss of more than 1500-2000 ml, the **protocol of massive transfusion** should be observed: it is necessary to start the introduction of blood components (freshly frozen plasma, erythrocyte mass) as early as possible (first hours) in a ratio of 1:1, since infusion only with crystalloids or colloids in a volume of more than 2000 ml with such a volume of blood loss already causes hemodilution coagulopathy and increases the volume of blood loss, the frequency of multiple organ failure and mortality. There are no clear criteria for starting red blood cell transfusions. The decision on blood transfusions should be made on clinical and hematological grounds [15]. It is impractical to refuse blood transfusions, focusing only on the level of hemoglobin or hematocrit. The level of hemoglobin at the beginning of the acute phase of bleeding does not reflect the true figures. Measurement of hemoglobin should be carried out in dynamics, in the process of infusion-transfusion therapy. It is also necessary to take into account the amount of blood loss, clinical signs of blood loss [12].

The main indications for transfusion of blood components:

1. Massive blood loss: more than 30% of the volume of circulating blood or more than 1500 ml.
2. Continued bleeding.
3. Changes in laboratory parameters.

When determining the degree of blood loss, it is necessary to take into account not only the volume of blood lost, but also the ratio of the volume of blood lost to the volume of circulating blood. This is especially true for pregnant women with low body weight, when for a woman with a body weight of 50 kg, 1200 ml of blood loss is blood loss of the 3rd degree, when transfusion of erythrocyte mass and freshly frozen plasma is necessary, whereas for a woman weighing 70 kg, blood loss of 1200 ml is 21% of the volume of circulating blood and this is the 2nd degree of blood loss. On average, a pregnant woman has 80-100 ml of blood per kg of body weight of a woman. The weight of a woman should be multiplied by 80 or 100 and the volume of circulating blood will be obtained.

Table 4. Estimated amount of blood loss depending on body weight

Body weight (kg)	Circulating blood volume (ml)	Blood loss of 15% of circulating blood volume (ml)	Blood loss 30% of circulating blood volume (ml)	Blood loss 40% of circulating blood volume (ml)
50	4000	600	1200	1600
55	4400	660	1320	1760
60	4800	720	1440	1920
65	5200	780	1560	2080
70	5600	840	1680	2240
75	6000	900	1800	2400

Note: Based on an estimated blood volume of 80 ml/kg in pregnant women. With preeclampsia, BCC is reduced by 30-40% and is 70 ml / kg.

It is necessary, taking into account the weight of the woman, to calculate the volume of circulating blood and calculate the degree of blood loss, taking into account the volume of blood lost. Depending on the degree of blood loss, the calculation of the infusion program and the calculation of the volume of injected crystalloid, NWS, erythrocyte mass is carried out.

Measures to prevent postpartum haemorrhage during pregnancy:

- Planning the delivery of pregnant women with a high risk of bleeding with the participation of a multidisciplinary team in level 3 institutions.

Measures to prevent postpartum hemorrhage during childbirth:

- Clamping of the umbilical cord not earlier than 1 minute after the birth of the child, if the condition of the child is satisfactory and there is no doubt about the integrity of the umbilical cord;
- Administration of uterotonics to all women in the 3rd period of labor;
- Massage of the uterus does not prevent postpartum bleeding.
- In the presence of risk factors for prophylactic purposes, carbetocin can be used instead of oxytocin at a dose of 100 µg (1.0 ml) intramuscularly or intravenously once immediately after the isolation of the placenta.

Measures to prevent postpartum hemorrhage during cesarean section:

Prevention of PPH with carbetocin has shown higher efficacy than standard use of oxytocin. Carbetocin is a uterotonic that should be used in cesarean section for prophylactic purposes, and not as a reserve uterotonic. Carbetocin is a long-acting uterotonic: compared with oxytocin, which to ensure a prolonged effect should be used by prolonged infusions, carbetocin is administered once at a dose of 100 µg. *For women at risk of bleeding, a combination of bolus and prolonged administration of oxytocin or carbetocin is possible.*

- The use of uterine or combined uterine-vaginal tamponade - at risk of postpartum bleeding.

Prevention of postpartum hemorrhage includes the following organizational measures:

- risk factors for PPH should be assessed before and during delivery;
- if additional risk factors for bleeding occur, the plan for the management of the pregnant woman and / or childbirth should be changed;
- clinicians should consider risk factors for PPH when counseling women about the location of the birth and inform patients about it;
- women with established risk factors for PPH should be evacuated to a medical organization according to the criteria of "regionalization of perinatal care";
- each department (maternity, reception, postpartum, etc.) should have an interdisciplinary detailed algorithm of actions for postpartum hemorrhage in the zone of visual accessibility;
- a kit for postpartum haemorrhage should be available in all units where a pregnant, part-time or part-time mother may be present;
- all staff working in maternal health should receive training in obstetric emergencies, including care for PPH;
- preparation for assistance in the PPH should be interdisciplinary and include the acquisition of teamwork skills;
- in all cases of PPH associated with blood loss in excess of 1500 ml, an audit of the critical situation should be carried out;
- accurate documentation of all events is essential when assisting with PPH;
- the woman should be given the opportunity to discuss obstetric bleeding events at a time convenient for her.

If you are at risk of PPH, you need to be prepared to fight bleeding:

- adequate venous access for each woman in labor;
- the presence of uterotonics;
- the presence of emergency laboratory tests (complete blood count, coagulogram, fibrinogen, etc.);
- the possibility of providing assistance by an experienced obstetrician-gynecologist and an anesthesiologist-resuscitator, who fully master the methods of providing assistance with obstetric bleeding;
- the presence of blood products.

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