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OBSTETRIC TACTICS IN PREGNANT WOMEN WITH BURN DISEASE

Author

Arziyeva Gulnora Boriyevna

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OBSTETRIC TACTICS IN PREGNANT WOMEN WITH BURN DISEASE

Monograph

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Zakirova N.I. Professor of the Department of Obstetrics and Gynecology No. 1 of Samarkand State Medical University.

This monograph establishes the diagnostic value of clinical and laboratory research methods for a comprehensive assessment of the condition of pregnant women with burns, enabling the optimization of treatment tactics. The effectiveness of active conservative and surgical tactics in improving the immediate and long-term outcomes of surgery in pregnant women has been determined. An algorithm for selecting the optimal method of surgical treatment for pregnant women with deep burns was developed, which resulted in a reduction of the patient's hospital stay.
The monograph is intended for obstetrician-gynecologists, master's students, clinical residents, and medical university students.

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PREFACE

Currently, burn disease is a serious medical, social, and economic problem in the healthcare sector, particularly affecting women's health and reproductive system. According to the World Health Organization (WHO),"burns occupy a leading place among other types of injuries, and in the era of technological progress, thermal injuries rank third among other types of injuries...." The incidence of burn disease in pregnant women and mortality from it was 87.0%, that is, according to the data of the last year, 2 out of 9 women (22.3%) died from burns and their complications. At the same time, the study of the peculiarities of evacuation and treatment of pregnant women with thermal injuries, the organization of specialized obstetric and gynecological care, the study of the influence on the state of the menstrual and reproductive systems of women, as well as on the course of pregnancy, and the development of tactics for preventing and treating life-threatening consequences for the mother are problems that need to be solved in modern medical practice.

A number of scientific studies are being conducted worldwide aimed at studying the influence of burn disease on the condition of the mother and fetus, early diagnosis of possible complications, development and prevention of the most optimal treatment methods in this case. In this regard, it is important to conduct scientific research aimed at determining the composition of thermal damage in pregnant women with burn disease in the I-II-III trimesters and studying the specific clinical course of burn disease in pregnant women depending on the stage of the disease, developing an improved method of managing pregnancy and childbirth in these women.

In our country, the healthcare system is entrusted with a number of tasks aimed at improving the quality of medical services provided to the population and adapting them to world standards, including protecting the health of women of reproductive age, early diagnosis of diseases occurring in them, and reducing complications. In this regard, such tasks as..."increasing the effectiveness, quality, and accessibility of medical care provided to the population in our country, as well as introducing high-tech methods of early diagnosis and treatment of diseases,

creating a patronage service, supporting a healthy lifestyle, and preventing and effectively diagnosing diseases..."3 have been defined for the fundamental improvement of the healthcare system. Based on these tasks, in obstetric and gynecological practice, timely assessment of the frequency of thermal injury in pregnancy and its clinical features, the state of functional and chronic hypoxia of the fetus, the elimination of metabolic changes developed as a result of hypovolemia in burned pregnant women, and the development of an algorithm for the tactics of pregnancy and childbirth in this group of women will make it possible to prevent complications such as underdeveloped pregnancy and antenatal fetal death, and reduce maternal mortality. In the world scientific literature, there is insufficient information on the influence of thermal injury on pregnancy and the reproductive system in women of childbearing age. According to B. Napoli et al., in obstetrics, there is no information regarding burns during pregnancy, and in combustiology, there is no information about the management of burned pregnant women (Napoli B. D'Arpan. Msellis M. Graciano R. 2000). According to Ghotbi et al., there are no written protocols for the treatment of burns during pregnancy, but the most important decision made is whether to terminate the pregnancy at the time of the burn injury (Ghotbi S., Beheshti M. 2006).

Due to the lack of clinical material and insufficient obstetric and gynecological care at certain stages of evacuation and treatment, the negative impact of skin burns on the course of pregnancy has been little studied or statistical data have been presented briefly (Karabayev Kh.K. et al., 2017; Smith B.K. et al., 2016; Bartle E.J. et al., 2016; Srivastava S. et al., 2018; Rode H. et al., 2020), or reflected in individual observations (Mabogunje O.A., 2020; Charles G. et al., 2020). The presence of unresolved problems in the methods of treating burned pregnant women, the tactics of managing pregnant women with thermal injuries are controversial and require the participation of narrow specialists in the management of such patients (Benmeir P. et al., 2018; Cheach G. et al., 2018; Dmitriyenko O.D., 2020). The pathogenetic mechanisms of changes occurring under the influence of thermal injury during pregnancy, the features of pregnancy in burn disease have not yet been fully

studied, there are significant differences in the tactics of managing pregnant women with thermal injury depending on the degree of burns and the duration of pregnancy.

In Uzbekistan, the works of Kh.K. Karabaev (2017), A.D. Fayazov (2019), B.B. Negmadjanov (2021), G.A. Ikhtiyarova (2021) and others, aimed at studying the influence of burn disease on the function of internal organs in women and preventing the development of complications, are noteworthy, however, there are no recommendations and proposals for the further management of the labor process in pregnant women, and there is insufficient data on the mortality rate as a result of the disease. The complexity of choosing diagnostic and treatment tactics for pregnant women in this group, insufficient recovery and impaired specific functions in the post-burn period, as well as the loss of self-confidence in burned pregnant women, indicate the need for comprehensive clinical and laboratory studies on this problem. Solving these problems makes it possible to conduct scientific research aimed at studying the features of the course, as well as the state of the fetus in pregnant women with burn disease in different trimesters of pregnancy, creating an algorithm for managing pregnancy and childbirth, developing new treatment methods for early diagnosis and treatment of complications in obstetric and gynecological practice, which is one of the main tasks of healthcare.

CHAPTER I

MODERN CONCEPTS OF THE MANAGEMENT OF PREGNANT WOMEN WITH THERMAL BURNS (Literature Review)

§ 1.1. Etiopathogenesis of Burn Disease in Pregnant Women and Treatment Outcomes

Burns are one of the most common thermal injuries. This is due to the further industrialization of countries, the development of new energy sources, and the widespread introduction of devices based on them into everyday life [60, 320-360 p.; 101; 11-13 p.]. Currently, in developed countries, the burn rate is 1:1000 per year, and the mortality rate ranges from 1.5 to 5.9% [8, pp. 19-21, 78; 40-44 p.]. At the same time, the main cause of death in burn victims is infection, which, according to some authors, is 76.3% in burn victims [48; 75 p.]. In peacetime, the factors leading to burns are very diverse, the main part of which falls on thermal agents. According to A.A. Alekseev et al. (2015), thermal burns accounted for 94.6%, of which flame burns constituted 38.5-45%. Usually, flame damage causes extensive and deep burns. [39; Pp. 116-117; 40-44 p.]. Especially severe injuries, caused by the absorption of clothing by a flammable liquid (gasoline, kerosene), as well as by the combustion of natural gas [75; 144, p. 68; 80]. At the same time, in recent years, attempts at self-immolation ("living torch") have significantly increased. According to data from the Moscow Burn Center and other major regional burn centers in Russia, suicide attempts accounted for more than 7% of burns in women and 0.9% in men [63; 18-20 p.]. In some publications, some aspects of this problem are noted, for example, the increase in self-immolation attempts in extreme psychotraumatic situations [D.M. Mukhamadiev, 2018] or the need for early diagnosis of psychogenic depression to prevent self-immolation [B.A. Kazakovtsev, 2018]. Among the contingent of patients in the burn center of the N. V. Sklifosovsky Research Institute, there is a large proportion of victims who attempted self-immolation. Thermal injuries in this group were very severe and led to death in 58.3% of cases [68; 80 p.].

Not always detectable thermal inhalation injury (TIA) and CO poisoning, especially extensive burns, dramatically worsen the consequences of burns. As a result of the combination of these conditions, the mortality rate was 24.3%, and CO poisoning - 31.2% [N.E. Povstyanoy et al., 2005].

The course of burn disease is divided into several periods: burn shock, acute burn toxemia, septicotoxemia, and convalescence. Although such a classification can be considered conditional, it facilitates understanding of the pathogenesis and helps to develop systemic treatment tactics [3;414b.]. Thus, during burn shock, microcirculation disorders, loss of plasma and protein with it, lead to alterative-dystrophic changes in the organs of immunogenesis. Increased immunosuppression during burn toxemia is associated with the accumulation of medium-molecular-weight peptides, bacterial and other toxic products, nonspecific metabolites, and biologically active substances in the body. Microorganism waste further enhances immunosuppression during septic toxaemia. Prolonged burn wounds lead to weakness, increased protein deficiency, and, as a consequence, immunodeficiency [15; 13 p.]. A decrease in the body's protective and compensatory capabilities leads to the development and spread of infection [24; 43-44 p.].

The aforementioned aspects of the pathogenesis of burn wounds and burn disease make the prevention of infection and its complications in burned pregnant women, the development of a complex of treatment methods, and the development of modern combustiology and obstetrics one of the priority areas. Antibacterial therapy plays an important role in the complex of measures aimed at preventing and treating infection in burned pregnant women [43; 54 p.].

In our country, a 4-degree classification of burning depth is used [76; pp. 37-39; 42-43 p.]. A slight swelling and redness of the skin in the burn area are characteristic of the clinical sign of a first-degree burn. In second-degree burns, "blisters" filled with serous fluid are additionally formed. In first-degree burns, only the epidermis is affected; in second-degree burns, the epidermis and the papillary layer of the skin are affected. A burn wound heals independently at the expense of preserved epithelial cells and is called a superficial burn [45; 71 p., 46; 105-106 p.].

In grade III A burns, the reticular layer of the skin is damaged, but the follicles, omentum, and skin glands remain intact, and epithelialization of the burn wounds occurs due to them. However, this is not always the case, sometimes a mosaic burn of the skin makes it difficult for the wound to heal independently. Especially in extensive burns, due to microcirculation disorders and infection, burn wounds can "deepen" and, as a consequence, the need for autodermoplasty arises.

Therefore, it would be correct to call the degree of burn IIIA not superficial, but limiting. This burn can be diagnosed based on large blisters filled with thin, mobile scabies or dark yellow serous fluid [17;14 p.]. In deep burns, the entire thickness of the skin (grade III B) or the underlying tissues - subcutaneous fat, fascia, bone - are damaged (grade IV). Burn III B degree, manifested by the formation of liver-colored scabs adhering to the lower tissues, sometimes with the formation of large blisters filled with hemorrhagic fluid. Burn of the IV degree is characterized by a dark brown or black scarring, densely adhering to the lower tissues. Grade III B - IV deep burns always require surgical treatment [55; pp. 71-73, 64; 170 p.]. In practice, the doctor determines the etiology of the burn and assesses the temperature of the indirectly damaging agent and its effect on the victim's tissues. Thus, flame burns, especially if the patient is heavily dressed, are always accompanied by deep burns. Cases of falling into hot or boiling water (often this thermal burn is associated with falling into sewer wells) also lead to third-degree B-IV burns. Conversely, when hot water spills, superficial burns (usually house injuries) occur. Contact or electrical burns often lead to limited but deep burns, while chemical burns cause I-II-III degree burns [78; 40-44 p. 62; 99-100 p.]. It should also be noted that fires and explosions in enclosed spaces are accompanied by burns to the respiratory tract and poisoning with combustion products. DENTITY is often accompanied by life-threatening complications in the first days of burns: early development of bronchospasm, pulmonary edema, and pneumonia [47; 320-360 p.]. Burn disease is a complex complex of interconnected pathogenetic reactions and their clinical manifestations, based primarily on a reaction to thermal injury, a stress reaction, and determines the victim's condition depending on the severity of the injury, the

timeliness and completeness of treatment. Depending on the etiological factor, three types of respiratory injuries (RIA) are distinguished: Type I - injuries caused by short-term exposure to flame, hot air, hot steam, and liquid; Type II - injury as a result of inhalation of smoke and other combustion products; Category III - damage to the mucous membrane caused by exposure to flame and inhalation of combustion product toxins [S.V. Smirnov et al., 2000].

Thus, to date, the problem of the influence of burns on the course of pregnancy in pregnant women with thermal injuries has not been sufficiently studied.

§1.2. Thermal injury and pregnancy

Thermal injury during pregnancy is one of the main causes of maternal and fetal non-obstetric death [90; 257-262, 98; 67-72, 105; 860-868, 113; 1015-1025, 101; 700-706). Anatomical and physiological changes associated with pregnancy, i.e., increased oxygen demand, decreased functional residual lung volume, and "full stomach," complicate treatment and reduce the time for quick decision-making [94;357-363 p., 112;271-278 p., 116;13-15 p.]. It should be especially noted that the probability of a woman with burns becoming pregnant may be unknown to both the patient and doctors, therefore, every woman with burns of childbearing age should suspect pregnancy. In the first trimester of pregnancy, the pelvic bone protects the uterus and the developing fetus from direct injury. In the second trimester, the pregnant uterus rises above the pelvic border, but the fetus is protected by a sufficient amount of amniotic fluid. At the same time, other anatomical organs (stomach, omentum) also protect the pregnant uterus from direct damage. Uterine rupture due to trauma is life-threatening, with maternal mortality reaching 10%, and fetal mortality - 100%. Premature detachment of a normally located placenta is typically observed in 1-5% of minor injuries and 20-50% of severe injuries. This complication is one of the main causes of maternal and fetal mortality [95;711-716 p,118;715-721 p,86;824-827 p,117;17 p,104;198 p,103;1149-1163 p]. As a result of the compression of the inferior vena cava by the pregnant uterus, venous blood return decreases, which reduces cardiac output and increases the severity of hemorrhagic shock. Therefore, the patient should be transported and examined while lying on

their left side. [106; 909-918]. After the mother's condition stabilizes, the fetal condition is assessed. In the event of premature birth, a decision is made to carry out the pregnancy individually, depending on the duration of the pregnancy and the condition of the fetus. If, despite the resuscitation measures taken, signs threatening the life of the fetus appear, it is necessary to resolve the issue of delivery [110; 116 p.]. In cases of antenatal fetal death, conservative delivery is possible until the mother's condition stabilizes.

The state of compensated intravascular coagulation during pregnancy, in the case of thermal injury, has its own advantages and disadvantages. Increased coagulation parameters can improve hemostasis in thermal injury. However, with prolonged immobilization, the risk of thromboembolic complications increases. In such patients, constant monitoring of hemostasis indicators and, if possible, anticoagulant therapy should be carried out.

Damage to the pregnant uterus can occur as a result of a car accident, fall, or violence. Cases of violence against pregnant women occur in 0.9-20.1%. Violent actions can lead to blunt or penetrating abdominal trauma. The risk of injury increases during pregnancy: 8% in the first trimester, 40% in the second, and 52% in the third. Increased splenic injury and retroperitoneal bleeding during pregnancy are associated with increased blood supply to these tissues [102; 728-732, 103; 1149-1163].

Thus, when a pregnant woman is subjected to thermal injury, the life of the mother and fetus is at great risk. After the mother's condition improves, care is taken for the fetus.

§ 1.3. Incidence and Outcomes of Burn Disease in Pregnant Women

In mass disasters in large cities, simultaneous injuries to a large number of people are observed. In women, and most importantly, pregnant women, the number of injuries can be significantly higher. We want to focus on the treatment of burned pregnant women. Data from the world literature indicate significant difficulties in

providing assistance to pregnant women with severe burns. An individual approach to each case requires the efforts of various specialists.

Despite the fact that many large combustion department archives contain information on the management of pregnant women with extensive thermal injuries, there is very little information on this issue in the literature. Approximately C.M. et al. (2002) reported 3 cases: in a 30-year-old pregnant woman with burns of 40% body surface area, II-III degree, a macerated fetus was born 3 months after the burns (at the time of treatment, her pregnancy was unknown); A 37-year-old pregnant woman with mild burns had a full-term child without any complications; a 21-year-old pregnant woman with burns of 50% body area, grade II, at 41 weeks of pregnancy, was induced by intravenous administration of oxytocin. As a result, the mother and child remained healthy. The only case of abortion described by Chama C.M. (2002) and the reasons for the onset of preterm labor in the 1st week after the burn by other authors may be associated with the synthesis of prostaglandin E (PGE) formed as a result of the burn. A.V. Churilov et al. (2005, 2006) observed 23 pregnant women with thermal burns for 5 years, but, unfortunately, the authors did not present the results of the treatment. Ghotbi S. et al. (2006) report one case of abortion after 30% burns in a pregnant woman. The authors believe that the direct cause of miscarriage is an increase in serotonin in the blood.

The frequency of thermal injury in pregnant women is 6.8-7.8% [P.Howell, 2009]. The highest incidence of burns during pregnancy was recorded in India. The consequences of burns for the mother and fetus depend on the severity of the burns, the type of complication, as well as the gestational age. With burns of 25-50% of the body surface, the mortality rate of the mother and fetus reaches 63%. In cases of extensive burns, in premature pregnancies, induction of labor should be recognized as the correct tactic. In burns, the main attention should be paid to the patient's breathing and blood supply to the body. With direct damage to the respiratory tract, the upper respiratory tract swells, leading to obstruction. At the same time, due to the direct impact of thermal injury, damage to the lower respiratory tract can also occur, as well as the toxic effects of smoke and fire products [88;471-477-

b,105;2003-2005-b,103;1149-1163-b]. During dental caries, burns of facial hair, eyebrows, and nose, stridor, wheezing, soot in saliva, and difficulty breathing occur, but most pregnant women may not experience clinical signs such as stridor and wheezing for several hours. In cases of extensive burns, impaired lung function is observed even in the absence of direct dental caries. For example, increased vascular permeability in the body's microcirculatory system leads to edema and acute lung damage. Metabolism in the pregnant woman's body increases within a few hours after burns. Hyperthermia, increased oxygen consumption, tachypnea, tachycardia, and elevated catecholamine levels in blood serum indicate hypermetabolization [103;1149-1163-b]. In cases of discharge from the upper respiratory tract, hypoxia, and edema, it is necessary to immediately transfer the pregnant woman to intubation. If there is no doubt, it is necessary to intubate the trachea before the appearance of edema; in the presence of edema, this procedure is difficult to perform. To improve the health of the mother and fetus, it is necessary to choose timely intensive infusion therapy (including control of airway patency) and the correct obstetric tactics (including early delivery). The main goal of intensive care and infusion therapy for burned pregnant women is to quickly stabilize the mother's condition. Only after this is attention paid to the fetus. Observing the fetal condition dynamically helps determine obstetric tactics during resuscitation, surgery, and in the postoperative period [93;2-3 p., 111;3-4 p.]. Treatment of pregnant women after thermal injury is a complex part of intensive care for obstetrician-gynecologists, anesthesiologists-reanimatologists, and requires the cooperation of narrow specialists in their management.

O. R. Nigmatullina (2010) in the clinic of Prof. T. Ya. Arev studied menstrual disorders and pregnancy as complications of burn disease. Large-scale deep burns in 6 pregnant women were complicated by miscarriage, antenatal fetal death, and premature birth. According to the authors, even with second-degree burns, if the damage to the body surface exceeded 10%, menstrual cycle disorders occurred in one-third of women in the form of amenorrhea or menorrhagia. In the remaining third of pregnant women, miscarriages occurred at different stages of pregnancy.

With deep burns of more than 15% of the body surface, spontaneous miscarriage of the fetus was observed.

R. N. Nazarov et al. (2013) analyzed the results of treatment in 18 pregnant women with burns of the IIIA-IIIB degree from 17% to 75% of the body surface. Studies have shown that pregnancy was complicated in all burned pregnant women. Spontaneous miscarriage was noted in 3 (16.6%) cases, and in 2 pregnant women (11.1%) at 34 weeks of gestation, premature birth was noted. In 3 (16.6%) pregnant women, labor was resolved independently. The remaining women underwent various surgical procedures: 6 (33.3%) women underwent vacuum extraction and obstetric forceps, and 4 (22.2%) women underwent cesarean section. Maternal and fetal mortality was observed in 5 (27.7%) cases.

In contrast to the above cases, R.F. Ryan et al. (2014) showed that in the early stages of pregnancy, the body surface area was 65% and 75%, and in 2 pregnant women with third-degree burns, the fetus was born alive. Moreover, the rapid healing of burns in them led the author to assume that pregnancy somehow contributes to the treatment of burns. However, R.F. Ryan (2014) could not confirm this hypothesis in laboratory experiments on animals.

Shi Y. et al. (2015) showed that in pregnant women with 50% burns of the body surface, premature birth occurred at 30 weeks of pregnancy, 3 days after the thermal injury. The woman who gave birth later died, but the baby survived. Parikh P, et al. (2015) reported 2 pregnant women with burns, in the treatment of which antispasmodics were used to prevent premature birth.

V. Rudovsky et al. (2015) emphasized the need to monitor the hematocrit indicator during resuscitation in pregnant women with severe burns, since its increase by more than 50% is dangerous for the fetus and complicates the maintenance of pregnancy. Psychological and emotional problems strongly affect pregnant women. The doctor should understand and empathize with depressive factors, such as the possibility of miscarriage, the birth of an unhealthy child, and the formation of a pitiful, rough scar [N. E. Povstyanoy et al., 2014].

Sokolov V. A. et al. (2016) presented data on 6 pregnant women with burns. In it, it was stated that there is a risk of labor in pregnant women with burns of more than 35% of the body surface. With burns of 10-15% of the body surface, such a tendency was not observed.

The lack of information about the problems arising after burns in pregnant women makes it difficult to choose an effective method of their treatment. In this regard, Y.W. Taylor (2016) reviewed the data collected at the US Army Surgical Research Institute from 1998 to 2014. During these years, 258 women of childbearing age were admitted to the combustiology department of the US Army Surgical Research Institute. Pregnancy was detected in 19 of them. Undoubtedly, thermally burned pregnant women were sent to the army burn center due to pregnancy, and therefore these figures are accurate and it would be wrong to assume that women of childbearing age and burned women. Burned pregnant women constituted 7-8%. In all cases, burns were caused by flame or explosion; there were no cases of burns by electric current or hot liquid. Of the 19 pregnant women, 11 were injured due to flammable liquids, 5 - due to burning of household appliances, 2 - due to a fire in a building, and one - as a result of a plane crash. Two pregnant women, burned by a flammable liquid, used gasoline to attempt suicide. These patients attempted suicide due to pregnancy. The data of the conducted research show that the survival of the mother is usually associated with the survival of the fetus. In such cases, unnecessary surgical interventions endanger the mother's life. In most cases, when a pregnant woman has severe burns, the fetus is often born alive before the mother's death. The subsequent survival of the fetus largely depends on its maturity.

O. D. Dmitrienko (2016) studied the features of burn clinic, treatment, and outcomes in 12 burned pregnant women treated at the St. Petersburg Combustiology Center over the past 61 years. In most cases (89%) the pregnant women were burned with hot fluid, in rare cases the burn factor was a flame. In half of the pregnant women, the burns were superficial (I-II-III degree), but in 11 of them, extensive burns occupied 10-30% of the body surface. Deep burns (grade IIIb) were detected

in 31 pregnant women. In 21 of them, the area of deep burns did not exceed 10% of the skin surface, and in 10 pregnant women, the area of deep burns ranged from 10% to 65% of the skin surface. In 3 pregnant women, burns in the fire were combined, i.e., skin burns were accompanied by dental caries and mechanical trauma. In the first trimester of pregnancy, 19 pregnant women were identified, most often in the second trimester (29) and third trimester (13). Studies have shown that the clinical course of burns in pregnant women and the processes developing in wounds are mainly determined by the nature and depth of the burns. No reliably confirmed features of the ulcerative process in pregnant women have been identified. Contrary to the opinion of V. Rudovsky (2016), O. D. Dmitriyenko (2017) did not leave an impression "On the beneficial effect of pregnancy on the treatment of moderate burns and burn wounds." The time for independent epithelialization of superficial burns, as well as the time for preparing deep burns for skin plasty, did not differ from that of pregnant women in this age group and averaged 14 and 22 days.

P.I. Bulay et al. (2016) described the course of burn disease in 12 pregnant women (7 cases ended in childbirth, one episode of sepsis, 4 cases of miscarriage). In 7 women during lactation, burns of the mammary glands were detected. The appearance of a fistula in the mammary gland complicated treatment. The best results were achieved by transplanting reticular skin flakes to the mammary gland.

J.L. Dalla-Villa (2017) provided information on 19 pregnant women with burns from Argentina. According to her data, the mortality rate from burns in the first trimester of pregnancy was 80%; unfortunately, there are not enough details to analyze these data. Thus, it can be noted that burns in pregnant women cannot be interpreted as an interpretation. Most of the information is very brief, and there is no information about water-electrolyte imbalance, hypoxia, acidosis, or sepsis in pregnant women. No data provides a detailed description of resuscitation measures and fluid transfusion methods, and the development of burn shock was noted only in one case.

Burns in pregnant women are very rare [114; 11-12 b]. The proportion of burned pregnant women in the combustiology department of Jishuitan Hospital

(China) was 0.61% of the total number of treated patients, and in the interregional burn center of St. Petersburg - 0.7%. Thus, Zhang Jingbei et al. (2018) in the European literature for 2000-2007, and according to D.R. Spahn (2007), burns were noted in 25 pregnant women. When analyzing domestic and foreign literature over the past 10 years, we found a number of articles based on a small number of observations (from 1 to 50) on this problem. In total, the authors described 167 cases of burns in pregnant women. However, the study of these materials is complicated by the lack of a unified international classification for determining skin depth in thermal burns and the absence of a specified gestational age in a number of publications.

Assessment of the effectiveness of conservative treatment was carried out based on the data of hourly and daily diuresis, hemodynamic parameters, hematocrit, and other analyses. In order to stabilize hemodynamics and diuresis, burned pregnant women required a large volume of infusion therapy compared to patients with similar burns. The main attention was paid to the fight against infection - from the moment the pregnant woman was hospitalized, antibacterial therapy was prescribed, and 2 types of antibiotics were used in the treatment of extensive and deep burns. Sulfonamide preparations were also widely used. In cases of extensive superficial and deep burns, depending on the gestational age, pregnant women were prescribed antispasmodics, progestogens, and tocolytic agents, although the question of the expediency and effectiveness of their use in this category of pregnant women is controversial [66; 12 b, 50.65 b; 118; 715-721b. 200-212 b]. In the period of toxemia and septicotoxemia, all pregnant women underwent intensive, if indicated, transfusion and drug therapy. The fight against infection complications was carried out constantly.

One of the main issues is the assessment of burn outcomes in the mother and fetus. According to the literature, all pregnant women with superficial and deep burns of up to 10% of the body surface recovered. They were discharged home from the hospital with their fetus preserved, but in one of them, the fetus was aborted on the 12th day after the injury, at 12 weeks of pregnancy. After being discharged home,

one of the patients had an induced abortion due to her unwillingness to have children. According to the study data, the remaining pregnant women had full-term and healthy children. Completely different results were observed in cases of deep skin burns exceeding 10% of the body surface. Exuditis was noted in 5 out of 10 pregnant women with deep burns, only in 3 cases the clinical prognosis was met. Thus, burn disease in pregnant women is a highly sensitive test. At the same time, in many cases where the burn disease was not extremely severe, the pregnancy was preserved [I.I. Yermolinsky, 2008].

Kh.K. Karabaev et al. (2019) Analysis of the materials of the Samarkand Regional Burn Center for 2001-2018 showed that of the 4,685 burned women, 31 were pregnant, and in 17 of them, with a large-scale deep burns of 60-85% of the body surface accompanied by burns of the respiratory tract, they died at different times after thermal injury, and all the victims described a case of self-incineration ("living torch").

Thus, the incomplete solution of the problem of managing burned pregnant women, the fact that thermal injury leads to many complications during pregnancy, indicates the need for a more in-depth study and standardization of this problematic dangerous condition.

Conclusions to Chapter I

Thus, to this day, the tactics of managing pregnant women with thermal injuries remain a key and controversial issue. When there is an indication for termination of pregnancy, the timing of the pregnancy is not clearly defined. In the literature, there are different opinions on this issue: a number of authors argue that delivery should be resolved if the body surface is damaged by more than 50%. Other authors stated that there is no absolute indication for induction in this case. The presented materials on the problem of burns in pregnant women do not allow for a generalized conclusion, but they indicate the tragedy of the problem, its insufficient study, and encourage deeper research.

CHAPTER II

MATERIALS AND METHODS OF THE STUDY

§ 2.1. Characteristics of clinical material

This clinical study was conducted from 2004 to 2022 at the clinical base of the Combustion Department of the Samarkand City Medical Association No. 1, the Combustion Department of the Samarkand Branch of the RSCEMC, and the clinical base of the Samarkand City Maternity Hospital No. 3. In accordance with the goals and objectives of the study, 138 pregnant women were selected in our scientific work, of which 50 (36.2%) were healthy pregnant women, 88 (63.8%) were pregnant women with burns. We divided pregnant women with burn disease into 2 groups: retrospective (n=40 (45.5%)), and prospective (n=48 (54.5%)). 2.1.

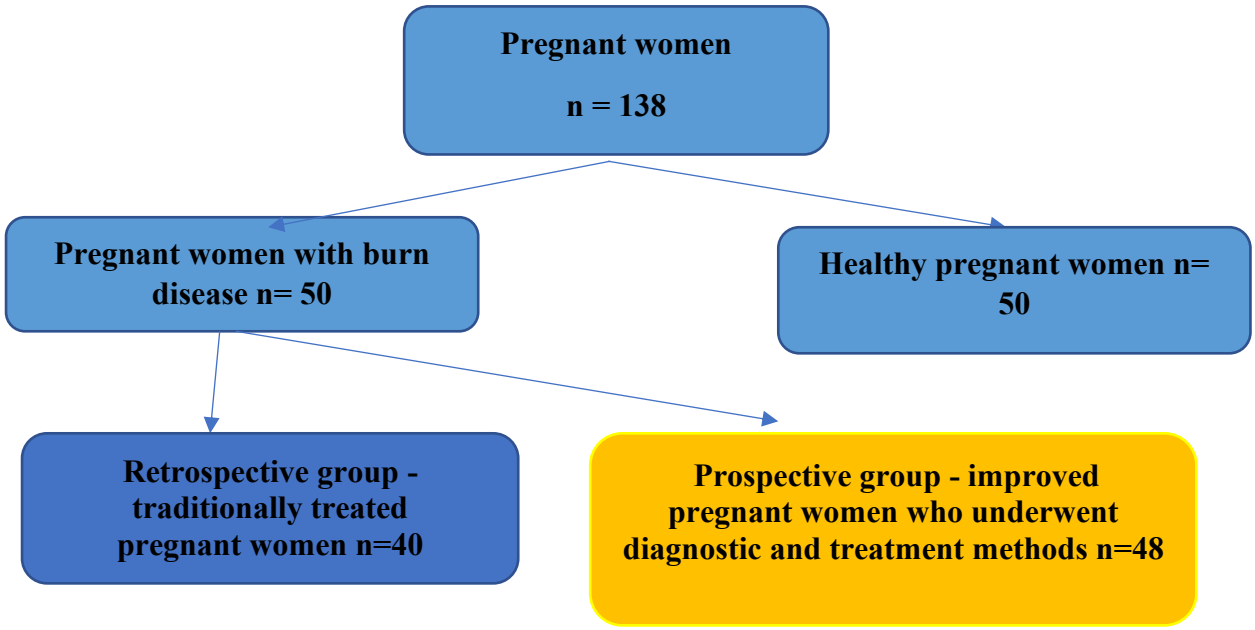


Figure. 2.1. Research Design

The study was conducted in 2 stages:

In group I (prospective 2013-2022), pregnant women with burns underwent improved methods of diagnosis and treatment.

In group II (retrospectively 2004-2012), the medical histories of burn-in pregnantwomen treated by traditional methods were analyzed.

The average age of the examined pregnant women varied from 19 to 32 years. In all three groups, the age range was 25.4 ± 5.1 years, respectively, and the majority (66.7%) were pregnant women aged 21-30 years. The decrease in these indicators before 20 years and after 31 years is shown in Figure 2.2.

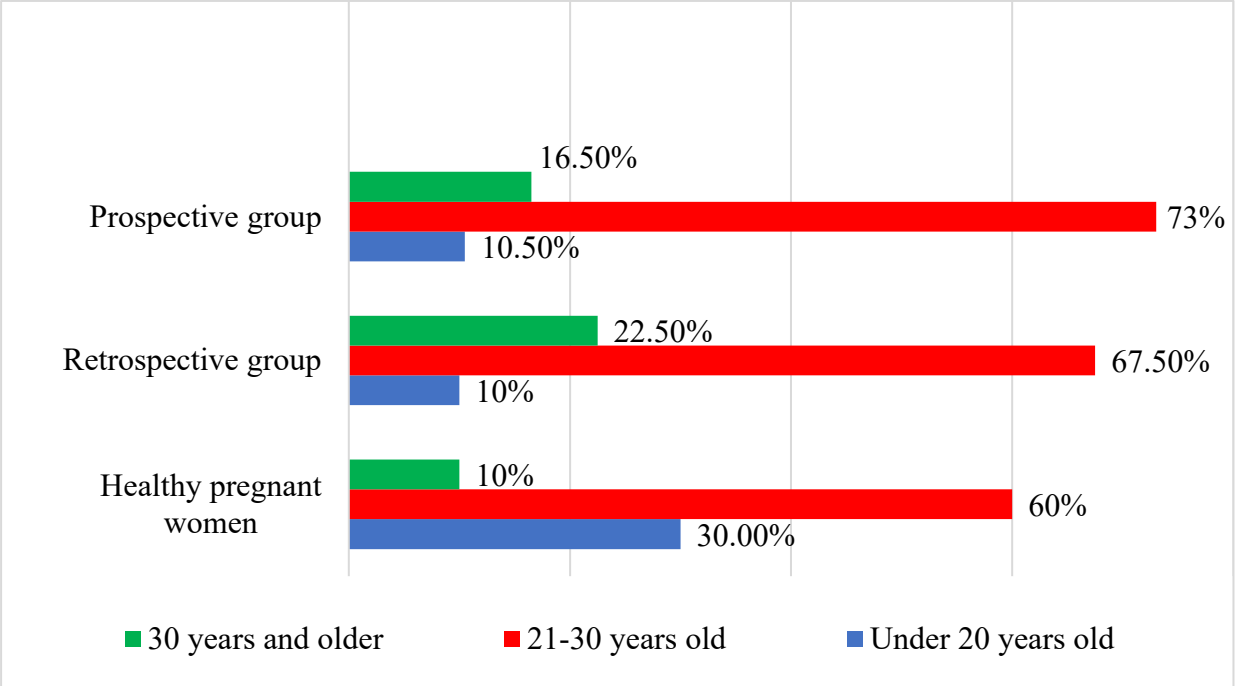


Figure 2.2. Distribution of Pregnant Women by Age (n=138)

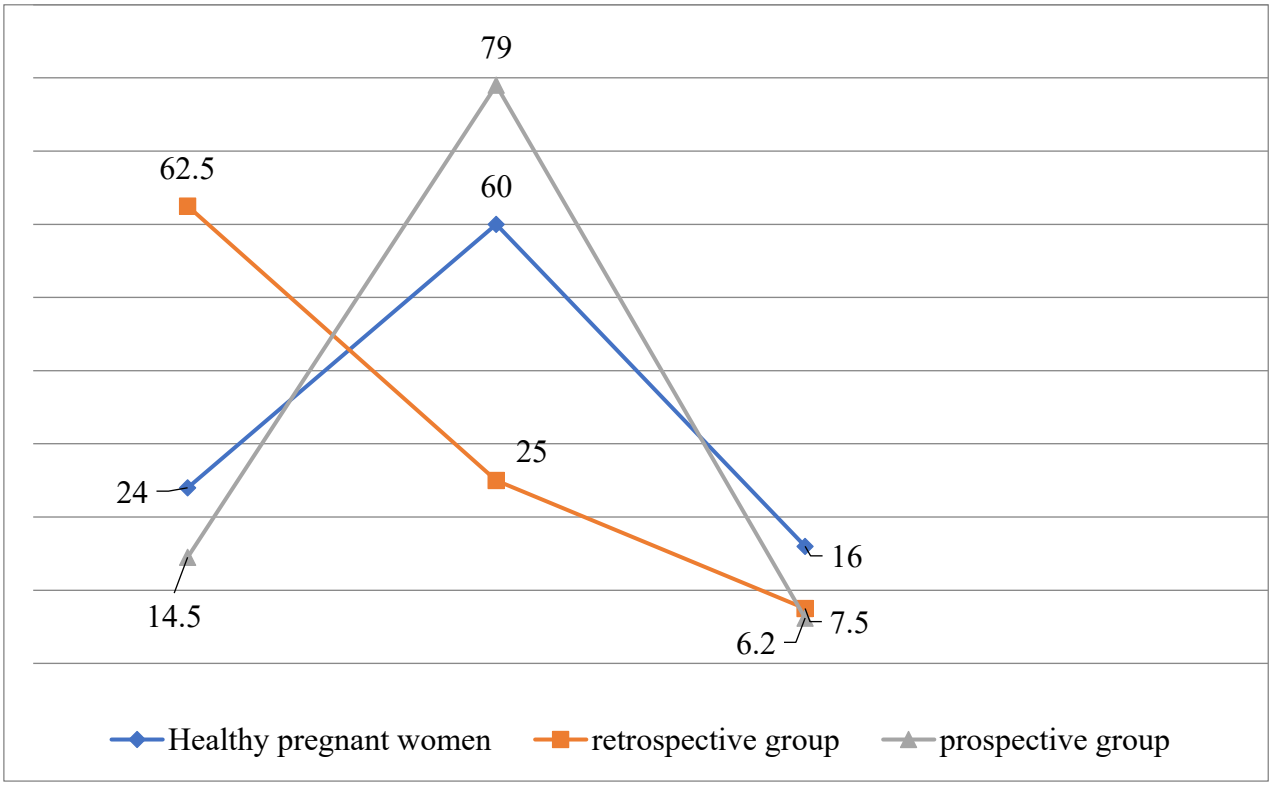
Of the burned pregnant women in the prospective group, 2 (4.2%) had a sexual life duration of up to 1 year, 35 (73%) - from 1 to 2 years, 3 (23%) - from 2 to 3 years, and 8 - more than 3 years.

In the retrospective group, accordingly, in 3 (7.5%) pregnant women, the onset of sexual life was up to 1 year, in 23 (57.5%) - up to 2 years, and in 14 (35%) pregnant women, the duration of sexual life was more than 3 years.

According to the questionnaire, 97.9% of pregnant women in the prospective group have a sexual life. Only in 1 (2.1%) case, 40% burns of the face, neck, lower back, abdomen, arms and legs of the II-III degree of arterial pressure, with subsequent complications by combined contractures and gross keloid scars, caused the dissolution of the marriage.

Among healthy pregnant women, the first pregnancy was observed in 12 (24%), the second in 30 (60%), and the third in 8 (16%); in the prospective group, the first pregnancy was observed in 7 (14.6%), the second in 38 (79.2%), and the third in 3

(6.2%) pregnant women, respectively, while in the anamnesis of pregnant women in the retrospective group, one delivery was observed in 25 (62.5%), two deliveries in 12 (30%), and three deliveries in 3 (7.5%). As can be seen from Figure 2.3, the second pregnancy prevailed in healthy pregnant women and pregnant women of the prospective group, while in the retrospective group, the first pregnancy prevailed by 62.5%.



Pic.2.3. Reproductive functions of pregnant women (%) n=138

Research design for problem 1 solution

Determination of the structure of thermal injury in pregnant women and study of the features of the clinical course of burn disease in pregnant women depending on the stage of the disease.

As part of this study, we analyzed the causal factors leading to burns in pregnant women, which are shown in Figure 2.4.

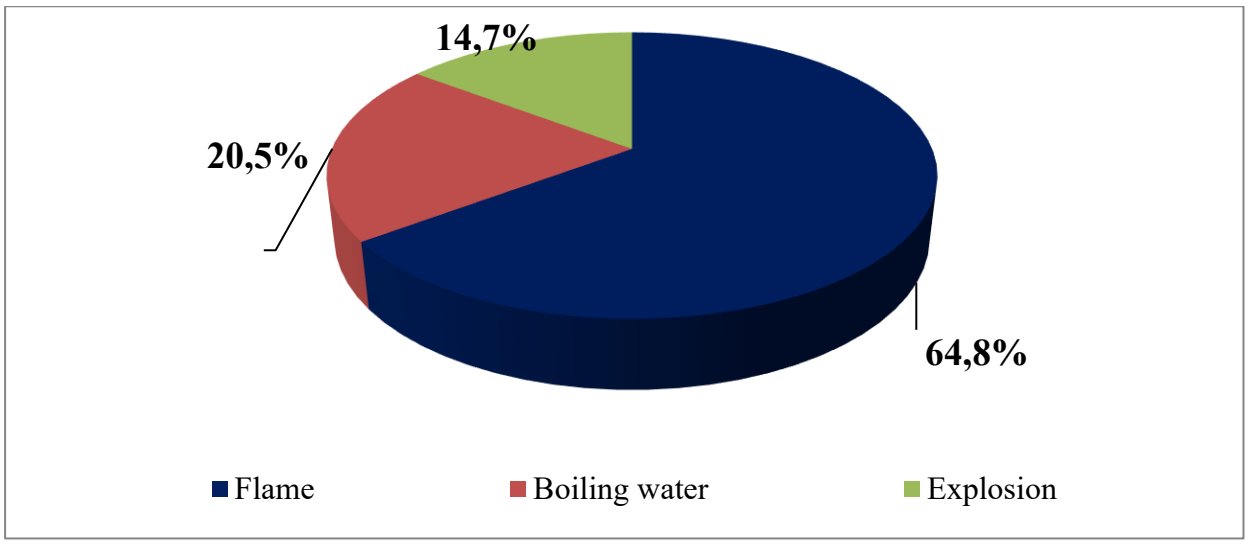
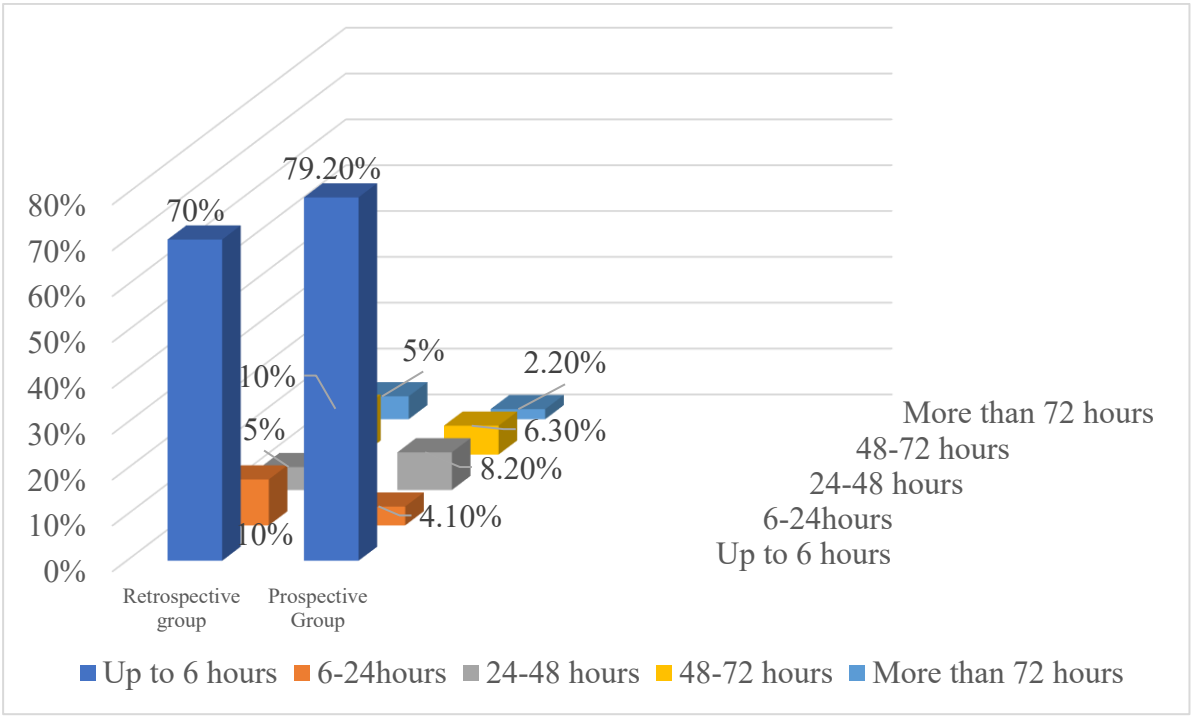


Fig.2.4. Etiological factors of thermal injury (%) n=138

Causes of burns in pregnant women: in 57 (64.8%) there was a flame, of which in 27 (30.6%) cases the pregnant women burned themselves (a live torch), in 18 (20.5%) hot water and in 13 (14.7%) cases thermal burns were observed as a result of the explosion of a gas cylinder. Our research showed that cases of thermal burns mainly occurred at home.

The time interval between burns and hospitalization of burned pregnant women is shown in Figure 2.5.



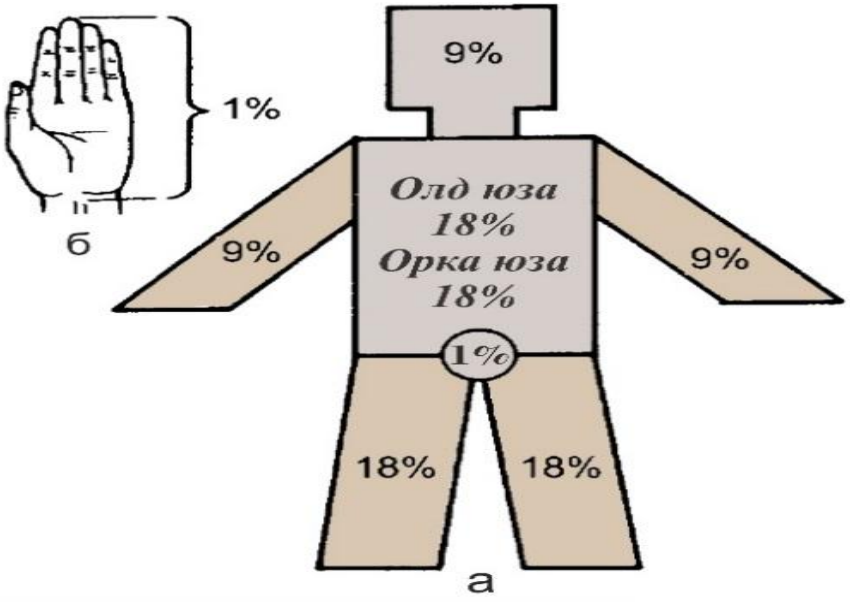
Pic.2.5. Time of hospitalization of burned pregnant women (%) n=138

75% of pregnant women were admitted to the clinic within the first 6 hours after burns. 25% of burned pregnant women applied to district hospitals 72 hours after burns, when treatment was ineffective. Our analysis showed that the results of pregnancy in victims have a direct correlation with the timing of burns, depending on how long it took to provide first qualified medical care. In our observation, 79.2%-70% of pregnant women missed the precious meal for the first 6 hours without adequate fluid intake. We did not find significant differences in either group.

Research design in problem 2 solution

Assessment of the condition of the mother and fetus according to the area and depth of thermal injury during the management of burned pregnant women.

The thermal burn field was assessed according to the "nine" rule proposed by A.V. Wallace (1951). When the area of all parts of the body is expressed as a percentage, they are equal to nine. In pregnant women with subtotal thermal burns, it was assessed according to the "palm" rule (body surface approximately 1% or 160 cm2) (Fig. 2.6).



Куйиш майдонини хисоблаш:
а- «Туккизлик» коидаси; б- «Кафт» коидаси.

Pic.2.6. Determination of the burn area according to the "nine" or "palm" rule.

Table 2.2

Distribution of burned pregnant women by area of injury

	Prospective group	Retrospective group	Overall

Area of injury on the body surface (%)	abs	%	p	abs	%	p	abs	%	p
from 10 to 20 hectares	12	25	χ^2= 9,667; p = 0,208	8	20,0	χ^2= 10,050; p = 0,123	20	22,7	χ^2= 13,818; p = 0,055
from 21 to 30 hectares	16	33,3		10	25,0		26	29,5	
from 31 to 40 hectares	8	16,6		4	10,0		12	13,6	
from 41 to 50 hectares	9	18,7		6	15,0		15	17,0	
from 51 to 60 hectares	1	2,00		6	15,0		7	7,9	
from 61 to 70 hectares	1	2,00		2	5,0		3	3,4	
from 71 to 80 hectares	1	2,00		2	5,0		3	3,4	
81 and more	-			2	5,0		2	2,2	
Overall	48	100,0		40	100,0		88	100,0	

As can be seen from Table 2.2, in 58 (65.9) pregnant women, the burn area was 40%, and in 2 (2.2) pregnant women, extensive burns were more than 81%. Upon inquiry into the anamnesis, extensive burns were observed when the burn agent was flammable, and limited burns were observed with burns with hot water.

The depth of the lesion was determined according to the classification of A.A. Vishnevsky et al. (1960) Fig. 2.7.

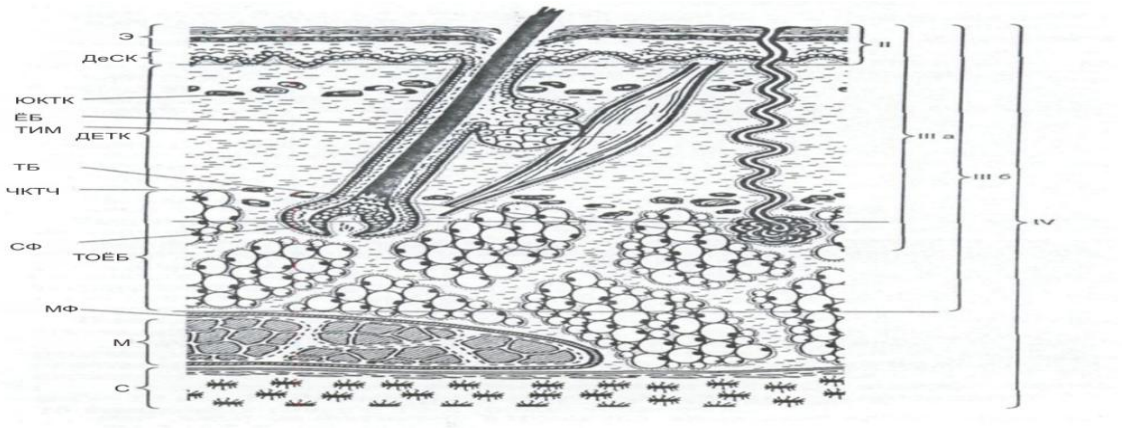


Fig.2.7. E-epidermis; DeSQ - papillary layer of the dermis; DeTQ - reticular layer of the dermis; CVD-Superficial vascular layer; YOB-Fatty glands;TIM-Intracutaneous muscles; TB - sweat glands; LVDT - Deep vascular plexus; SF-Hair follicles; TOYOB - Subcutaneous sebaceous glands; MF-muscle fascia; M - muscles; C-Bone.

Depending on the area of deep burns, all thermal burns were distributed as follows: 3 (3.5%) pregnant women with deep burns limited to 5% of the body surface (Table 2.3). In 45 (51.13%) pregnant women, deep burns were spread over an area of more than 30%, of which 8 (9.0%) had severe burns of more than 50% of the body surface.

Table 2.3.

Distribution of pregnant women by area of deep trauma

Depth application area in % of body surface	Prospective group		Retrospective group		Overall	
	Abs.	%	Abs.	%	Abs.	%
from 5 to 10 hectares	2	4,2	1	2,5	3	3,5
from 11 to 20 hectares	6	12,6	4	10,0	10	11,5
from 21 to 30 hectares	16/3*	33,3	14	35,0	30/3*	34,0
from 31 to 40 hectares	11/11*	22,9	11/5*	27,5	22/16*	25,0
from 41 to 50 hectares	8/8*	16,6	7/7*	17,5	15/15*	17,0
51 and more	5/5*	10,4	3/3*	7,5	8/8*	9,0
Overall	48/27*	100	40/15*	100	88/42*	100

Note:* - pregnant women with thermo-inhalation injuries (42).

As can be seen from Table 2.3, 42 (47.7%) pregnant women received thermo-inhalation injuries. Due to the need to observe the principles of representativeness of the compared groups, we tried to ensure that the treated pregnant women did not differ creatively from each other in this indicator of injury severity (prospective group and retrospective group).

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Location of burn wounds	Prospective group		Retrospective group		Overall	
	Abs.	%	Abs.	%	Abs	%
Head, face, neck, body, limbs	31	64,6	30	75,0	61	69,3
Surface of limbs and body	16	33.3	8	20,0	24	27,3
Legs and buttocks	1	2,1	2	5,0	3	3,4
Overall	48	100	40	100	88	100

Limited injuries in our observation amounted to 3.4%. Large-scale injuries, covering several anatomical areas, were observed, especially in burns (64.8%). An

important moment for pregnant women is the rapid healing of burns located in the abdominal area, since when there is a need for surgical intervention during labor (caesarean section), it is important to have a "clean" surgical area.

As can be seen from the table, burns of the head, face, neck, torso, and extremities occurred in both groups (64.6%; 75%) compared to burns in other areas of the body, we attributed to the presence of the factor of thermal injury in the presence of flame, and especially in cases of self-ignition. No significant differences were observed in the localization of burns by groups.

Figure 2.9. D., 28 years old, medical history No. 15176/168. Diagnosis: 45% thermal burns of the anterior, posterior, and upper extremities of IIIAB degree

The severity of the victims' condition was assessed using the Frank index (FI) (G.Frank, 1960), which has not only diagnostic, but mainly prognostic significance. FI - integral part of superficial and deep burns, expressed in traditional units, corresponding to 1 index unit for every 1% superficial burns and 3 units for every 1% deep burns. In cases of burns of the upper respiratory tract, 15, 30, 45 units are added, depending on the severity of the injury, respectively. The forecast is considered positive if the Frank index is up to 30 units, relatively positive - up to 31-60, questionable - up to 61-90 units, and negative - more than 90 units.

In all pregnant women with burns of more than 10% of the body surface, characteristic signs and complications of burn disease developed. The severity and outcome of CK depended on the depth of the burn and the presence or absence of

TOO. Burn shock occurred in 40 (83.3%) victims of the prospective group with severe symptoms: severe tachycardia, fluctuating blood pressure, decreased diuresis (anuria for 6-9 hours, followed by oliguria), persistent nausea and vomiting.

Pregnant women gradually emerged from shock by the end of the 3rd day. Signs of acute burn toxemia (early psychosis, hyperthermia) were observed in 34 (70.8%) and septicotoxemia (sepsis, pneumonia, pyelonephritis) in 27 (56.2%) pregnant women.

Research design in problem 3 solution

Development of an algorithm for managing pregnant women depending on the duration of pregnancy and the severity of thermal injury.

In our study, we were convinced that the clinical course of burn disease in pregnant women and the processes developing in burn wounds were determined, first of all, by the nature and depth of the damage. We did not reveal any specific features in the healing process of burn wounds in the pregnant women under our observation.

Research design in problem 4 solution

Characteristics of pregnancy progression in pregnant women with burn disease.

According to our observations, 69 (78.4%) pregnant women with thermal injury had a positive and relatively positive prognosis according to the prognostic index (IF = 30-60 units) and 19 (21.6%) pregnant women had a questionable and unfavorable prognosis (IF = 61-90 units and higher).

From the point of view of the proportion of pregnant women with thermal injuries, which led to a questionable and unfavorable outcome, the complex therapy did not have an advantage in either of the two groups. According to our data, simultaneous TOOTH significantly worsens the prognosis of burns, especially when combined with extensive deep burns.

One of the important issues was the assessment of the consequences of thermal injury for the mother and fetus. In our observation, 3 pregnant women with burns of II-IIIA degree were transferred to the obstetrics department with labor pains, and all had full-term labor. In 5 pregnant women with burns of 10-15% of the body surface IIIA-B degree, full-term labor was complicated by secondary delayed labor. In 4 pregnant women who were admitted with deep burns of more than 20% of the body surface in the first trimester of pregnancy, spontaneous miscarriage was observed on the 2-3rd day after the injury, and on the 4-5th day in 9 pregnant women. Premature births occurred in 11 pregnant women and in 3 pregnant women on days 15-20 after burns. In 3 dying pregnant women with severe deep burns of more than

40% of the body surface, cesarean section was performed at 38-39 weeks of pregnancy, and live newborns were born with an Apgar score of 6, 6, and 7.

In the prospective group, 3 (6.25%) pregnant women died, in the retrospective group - 13 (32.5%) pregnant women.

Deep burns were observed in most pregnant women, of which 42 (47.7%) were accompanied by dental caries (live torch, suicide).

In 85 out of 88 pregnant women with thermal burns, the area of deep burns was more than 10% of the body surface, of which 8 belonged to the prospective group. In 40 pregnant women, deep burns of the body surface were detected from 20% to 51% and more. Similar information is provided by D.J.Dubby, et al. (2000). Rezavand N., also author. (2012) as well.

Among burned pregnant women, 40% or more of the body surface were injured, and severe thermal burns with dental caries of the respiratory tract were received. Mortality due to the severity of somatic trauma, suicide was higher in the retrospective group 13 (32.5%).

§ 2.2. Research Methods

In order to determine the presence of burn shock and multiple organ failure (MRP) in pregnant women with thermal burns, all victims underwent general clinical and instrumental examination methods: cardiovascular (ECG, Echocardiography) and respiratory organs (radiography of the chest, fibrobronchoscopy), uterus, liver, kidneys (ultrasound, Doppler), gastrointestinal tract (EGDFS), clinical blood and urine tests.

In all pregnant women with thermal burns, changes in urine (proteinuria, leukocyturia, microhematuria and cylindruria, acetone and glucose) were observed, anemia and hypoproteinemia developed. At the same time, special attention was paid to the measurement and careful monitoring of hemodynamic parameters, body temperature, respiratory rate, hourly and daily diuresis, taking into account the features of this type of injury. The hematocrit value was observed in all examined pregnant women, both upon admission to the hospital and in subsequent days. Hemodynamic state: blood pressure (BP), heart rate, central venous pressure (CvP). To determine the degree of hemodynamic disturbances during burn shock and their correction, circulating blood volume (CVB) was determined. Circulating blood volume was determined by the method of A.A. Fromm and A.A. Lipas in the modification of L.E. Manevich. The study of blood volume was carried out daily for 5-7 days after receiving the pregnant woman, before and after the start of infusion therapy.

The study of the acid-base state of blood (ASS) was conducted in all observed pregnant women using the Medica Easy Bloodgas analyzer to determine the degree

of dependence on the degree of burn shock immediately after the administration of the pregnant woman, after the correction of the acid-base state of blood, and within the next 24 hours. At the same time, blood Rh, buffer base deficiency, and partial (QSO2) pressure of carbon dioxide in capillary blood were detected.

The total protein and protein fractions in the blood serum of pregnant women were determined by the biuret method and electrophoresis on filter paper.

The blood glucose level was determined by a color reaction with ortho-toluidine (A.N.Aripov et al., 2000). Blood serum cholesterol metabolism was studied using the Lieberman-Burhard reaction (Ilk method). General, bound, and unbound bilirubin were determined in blood serum according to the K. Jendrassik method. The activity of aldolase (ALD), asparagine, and alanine transaminase (AST, ALT) in blood serum was studied by the Wrightman and Frenkel methods.

Alkaline phosphatase (AL) in blood serum was determined by hydrolysis of p-nitrophenylphosphate (Bessel, Lowry, Broke method). In burned pregnant women, K+ i and Na ions in blood plasma were determined using a selective Medica ion analyzer. Determination of residual nitrogen in the blood was carried out using the hypobromite method, urea (Urea 450) and creatinine (Great 100) - Bio-La-Test. The above-mentioned clinical and laboratory studies were conducted by A.N. Aripov et al. (2000) and N.Kh. Abdullaev et al. (2002) was carried out in accordance with the recommendations given in the guidelines. The presence of systemic anti-inflammatory response syndrome (SIARS) is determined by the presence of 2 or more signs listed according to R. Bone. The presence of organ dysfunction was determined by J.C. Marshall (1995), the development of POI - by L. Doughty.

Morphological examination of placenta

In our study, 24 placental morphological studies in resolved pregnancies from 48 burned pregnant women in the prospective group were conducted at the Department of Pathology and Anatomy of SamSMU. The placenta was fixed in a 10% solution of neutral formalin, and then poured into paraffin through concentrated alcohol. The histological section was stained with hematoxylin-eosin. The photographs were taken using an "Opton" microscope with a photoplate (German product).

Ultrasound and Doppler examination methods

For the purpose of the study, in order to study the influence of CC on the functional state of the fetoplacental complex in pregnant women, ultrasound examinations were performed in 22 (45.8%) pregnant women of the prospective group, and additionally, dopplerography was performed using the ultrasound diagnostic system DC-30 "Mindray" (China) S/No9R-77001838, using linear and convex sensors with a frequency of 3.5 MHz by Dr. Nurmirzaev Z.N.

Fibrobronchoscopy examination method

In the prospective group, in 73% of pregnant women with thermal burns accompanied by dental caries, FBS was performed within the first 3 days. This examination was performed on a fibrobronchoscope (Fujifilm PS2-HP/Japan) device for the purpose of early detection of thermo-inhalation damage and study of the prognosis of the disease (Fig. 2.9).

Figure 2.10.Fibrobronchoscope (Fujifilm PS2-HP/ Japan)

§2.3. Statistical processing of results

The research materials underwent statistical processing using parametric and non-parametric analysis methods.

Collection, correction, systematization of source data and visualization of the obtained results were carried out in Microsoft Office Excel 2016 spreadsheets. Statistical analysis was carried out using IBM SPSS Statistics v.26 (developed by IBM Corporation).

Statistical processing of the collected data - arithmetic mean (M), standard deviation (SO); 95% confidence interval (95% CI); Mac-Nemar test for comparing relative indicators, Pearson's $\chi 2$ test for comparing nominal data; Fisher's accurate test was used to assess the significance of the differences. R greater than 0.05 does

not indicate statistically significant differences. A P value less than 0.05 indicates their presence.

The obtained values of the Student's t-test were evaluated in comparison with the critical values. Differences in indicators $p<0.05$. It was considered statistically significant at the level of significance.

Thus, modern studies have significantly expanded our understanding of the risk factors for the course of pregnancy and the development of possible complications of CC. Our comprehensive approach to the study of the course of CC in pregnant women allowed us to obtain new data on the management of burned pregnant women.

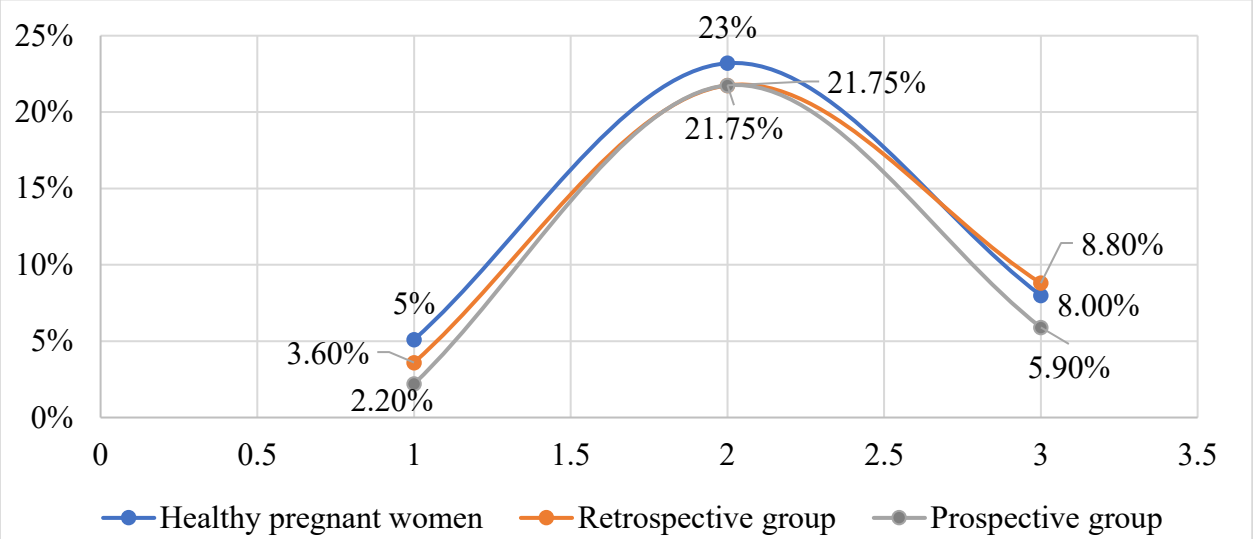
Chapter III.

FEATURES OF THE COURSE OF BURNING DISEASE IN PREGNANT WOMEN

§ 3.1 Characteristics of clinical groups

In the diagnosis and assessment of the severity of burn shock in pregnant women with CC, we studied 88 burned pregnant women. In this regard, we divided the pregnant women with CC into two groups: prospective (n=48) and retrospective (n=40). We also analyzed the birth history of healthy pregnant women (n=50) to compare the course of pregnancy and the results of childbirth.

The distribution of burns in pregnant women by age is shown in Figure 3.1.



Distribution of pregnant women by age (%, n=138) **In Figure 3.1,** the age of pregnant women in this group was mainly 21-30 years (23%-21.75%-21.75%). This age range indicates reproductive age.

In our study, the majority of pregnant women were 60%-72.5%-56.3% from rural areas, and 40%-27.5%-43.7% from urban areas. We linked the fact that most burned pregnant women live in rural areas with their living conditions, that is, they use kerosene or gasoline to light a flame when cooking food in the stove and baking bread in the tandoor (Figure 3.2.).

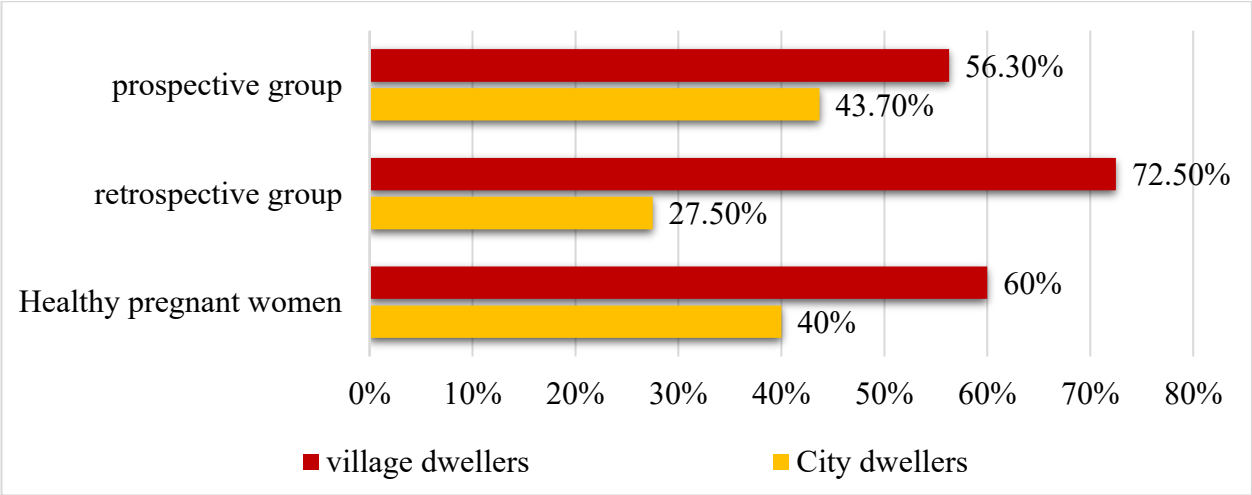


Fig.3.2. Place of residence of pregnant women (%, n=138).

When we inquired about the level of education of our pregnant women, housewives prevailed in all groups (56%-52.5%-50%). It should be noted that among burned pregnant women, the number of workers prevailed (27.5%-31.3%), compared to healthy pregnant women (2%). Educated healthy pregnant women (14%) and burned pregnant women (5%-2%) have a diploma. It can be concluded that the lower the level of education, the more cases of self-immolation occurred. Students (28%-15%-16.7%).

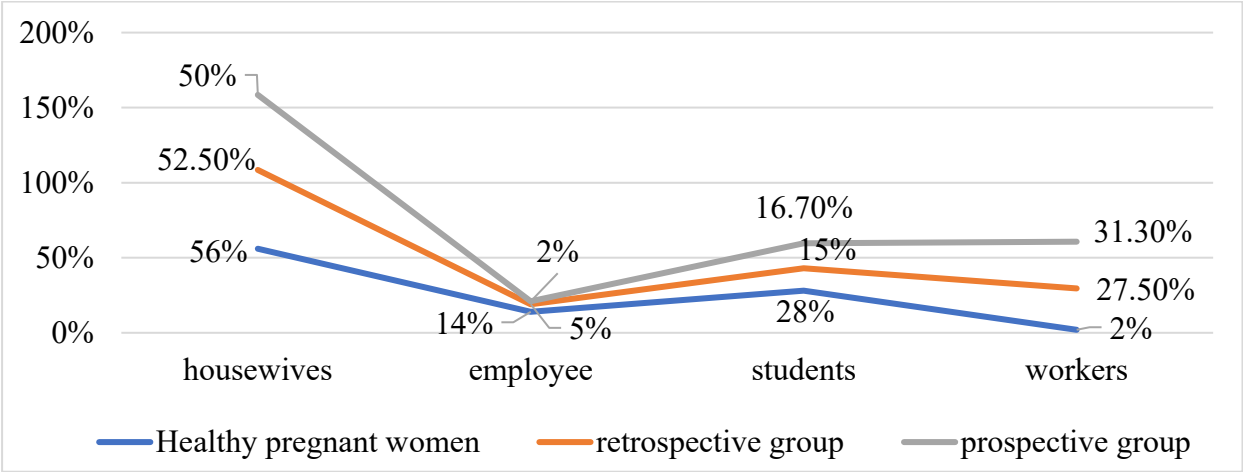


Figure 3.3. Pregnant women by social status (%, n=138).

Somatic diseases that affect the course of CC in pregnant women are of great importance. As can be seen from Figure 3.4, among somatic diseases, anemia (45.8% and 60%), chronic bronchitis (10.4% and 7.5%), and chronic hepatitis (8.3% and 5.0%) were most common. Although these diseases are not associated with the occurrence of CC, they have a negative impact on the course of burn disease.

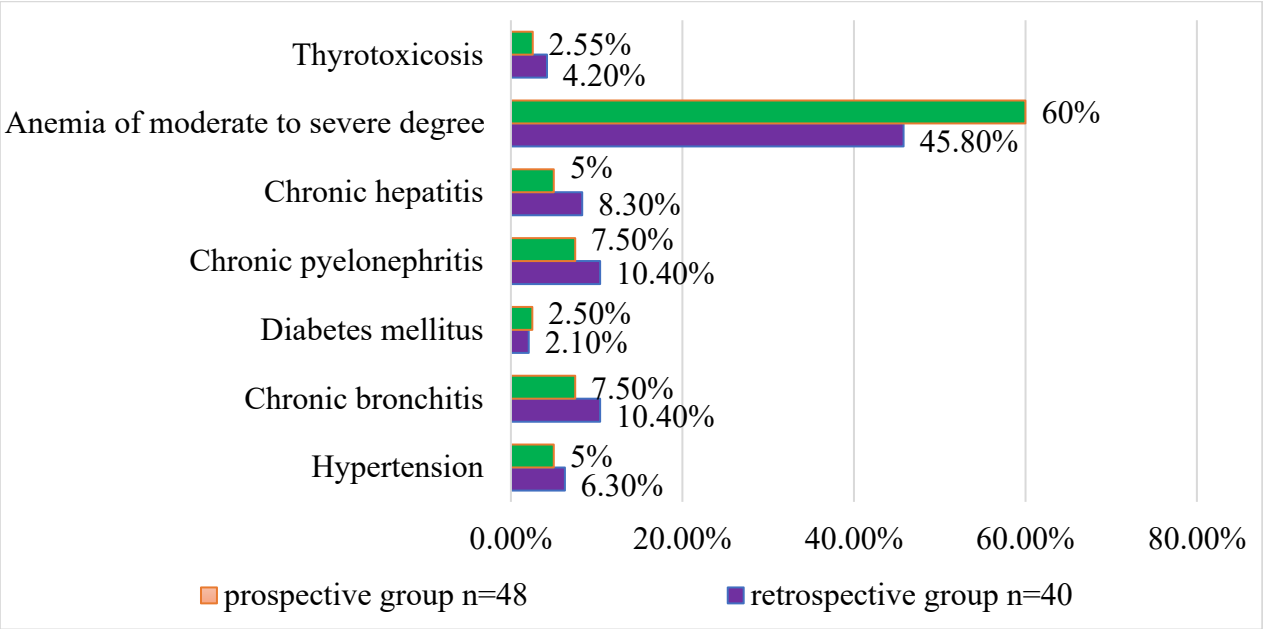


Figure 3.4. Somatic diseases of burned pregnant women (%, n=88).

When we examined the history of gynecological diseases in pregnant women with CC, we found that inflammatory diseases were more common in pregnant women in the retrospective group. The high percentage of cervical dysplasia in the prospective group is explained by the improvement in detection in recent years due to cervical cancer screening (Fig. 3.5).

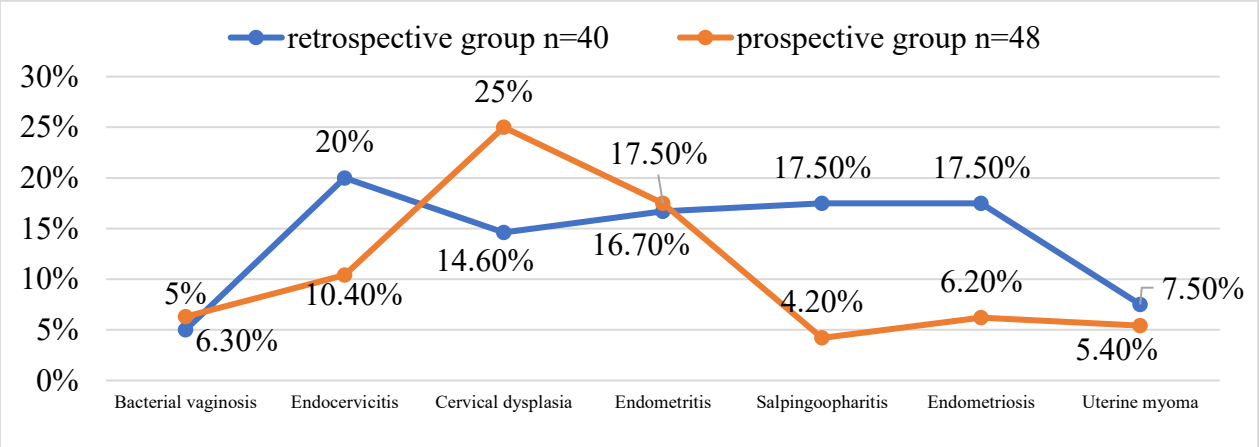


Figure 3.5. Frequency of gynecological diseases in burned pregnant women (%, n=88).

§3.2 Features of the course of burn disease in pregnant women

Pregnant women with thermal burns (n=88) complained of severe burning pain in the burn wound, burning, nausea, vomiting, dizziness, weakness, tremors, and thirst. As can be seen from Table 3.1, all burned pregnant women experienced pain and burning in the area of the burn wound. Complaints such as nausea,

vomiting, dizziness, weakness, chills, and thirst in pregnant women of our prospective group were significantly reduced compared to pregnant women in the retrospective group, according to the algorithm of management.

Table 3.1.

Complaints of burned pregnant women (n=88)

Complaints	Retrospective group		Prospective group	
	n=40	%	n=48	%
Burning severe pain	40	100	48	100
Burning in burn area	40	100	48	100
Nausea	19	37,5	15	39,5
Vomiting	32	72,5	29	66,6
Dizziness	22	42,5	17	45,8
Weakness	37	75	27	77
Trembling	28	5	18	58,3
Thirst	22	42,5	15	45,8

In 57 (64.8%) of 88 burned pregnant women, the cause of burns was a flame, of which self-ignition ("living torch") occurred in 27 (30.6%), hot water in 18 (20.5%), and the explosion of a gas cylinder in 13 (14.7%) cases.

The upper respiratory tract may be severely damaged by the flame, but the lower respiratory tract may not be affected. In cases of burns with hot steam, burns can reach the upper and lower respiratory tract and lung parenchyma. Smoke is a complex mixture of solid and microdrop particles in a gaseous medium, which enters the alveoli of the lungs during inhalation. This type of pathology is called respiratory distress syndrome.

Fig.3.6 F., 22 years old, medical history No3236/62. Diagnosis: 75% thermal burns of the face, neck, front and back of the body, hands and feet of II-IIIAB degree. Thermo-inhalation injury. Severe burn shock.

The development of complications of CK in burned pregnant women depends on the time elapsed since their admission to the hospital after thermal injury. Therefore, the shorter the interval between the time of thermal burns and the start of treatment, the fewer complications develop. (Echevarria-Guanillo M.E., Goncalves N., et al 2016). To illustrate this part of the study, we present the following clinical case involving a gas cylinder explosion:

Clinical presentation: No1

20-year-old pregnant woman with thermal injuries was brought to the district central hospital in serious condition in F.'s personal car (disease history No. 6223/529). According to her husband, the pregnant woman received burns at home 45 minutes ago as a result of the explosion of a gas cylinder. Upon examination, burn wounds are detected: burns on the face, eyebrows, and nostrils, burns on the neck, front and back surfaces of the body, legs, and arms, as well as wheezing when speaking. Based on the above data, the following diagnosis was made: Pregnancy III, 36 weeks. II-IIIIA degree burns of 55% of the face, neck, limbs, front and back surfaces of the body. Severe thermal shock. A consultation was organized, consisting of a combustiologist, obstetrician-gynecologist, and anesthesiologist.

Taking into account the critical condition of the injured pregnant woman, the gestational age, and the viability of the fetus, a cesarean section was performed for the purpose of emergency delivery. A live male fetus was born with a weight of 2650 g, a length of 46 cm, and an Apgar score of 6-7 points. The postoperative period passed without complications. The placenta was sent for morphological examination. Morphological examination of the placenta revealed that the blood

vessels of the decidual membrane were in a state of ischemia, and significant edema was observed in the interstitial tissues (Fig. 3.7). The woman who gave birth was discharged home with her child on the 10th day.

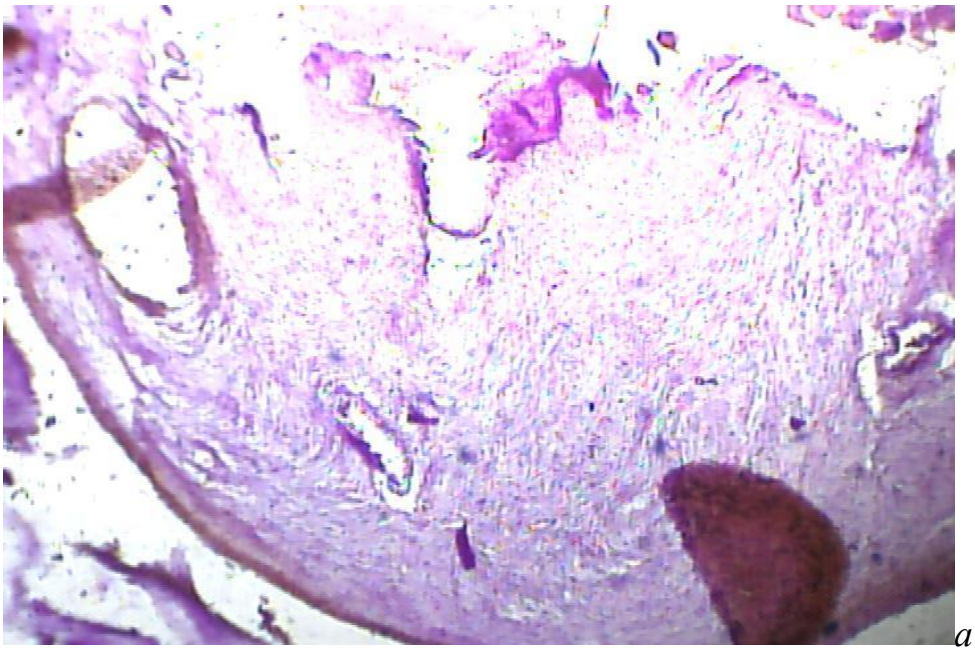


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Fig.3.7. Morphological examination of the placenta: ischemic blood vessels of the decidua and pronounced edema of the interstitial tissues. Placenta. Hematoxylin stained with eosin. F., 20 years old (disease history 6223/529).

а б

Fig.3.8.a,b.-F., 20 years old (disease history 6223/529). On the 20th day after cesarean section.

Thus, the main elements of success in this case were the prompt hospitalization of the burned pregnant woman, the timely initiation of calculated infusion-transfusion therapy, and the correct choice of obstetric tactics.

In the world literature, there is various evidence that severe trauma dramatically changes the course and outcome of pregnancy. In our study, some complications were observed in the course of pregnancy before burns, the number of which sharply increased after the development of burn disease.

Among pregnancy complications, the risk of miscarriage was most often observed, especially in the early stages. At the same time, this complication almost doubled after burns, from 25% to 45.83%. Similarly, the uncertain position of the fetus increased from 6.25% to 14.58%, preeclampsia - from 16.6% to 20.8%, polyhydramnios - from 6.25% to 8.3%. There were no changes in fetal hypotrophy. After the development of burn disease, the frequency of complications increased from 43.7% to 66.6%. Information on these complications is presented in Table 3.2.

Table 3.2

Features of pregnancy progression in burn disease n=88.

Obstetric complications	Before Burning			After Burning			McNemar
	abs	M(%)	m	abs	M(%)	m	P
vomiting in pregnant women	6	12,50	4,77	7	14,58	5,09	1,000
Preeclampsia:	8	16,67	5,38	10	20,83	5,86	0,544
-medium grade	7	14,58	5,09	8	16,67	5,38	
- severe degree	1	2,08	2,06	2	4,17	2,88	
Risk of miscarriage	12	25,00	6,25	22	45,83	7,19	0,041
Polyhydramnios	3	6,25	3,49	4	8,33	3,99	1,000
Low water content	0	0,00	0,00	1	2,08	2,06	1,000
Uncertain position of fetus	3	6,25	3,49	7	14,58	5,09	0,289
Fetal hypotrophy	2	4,17	2,88	2	4,17	2,88	1,000
Total pregnancy complications	21	43,75	7,16	32	66,67	6,80	0,043

The area of burn depth in pregnant women with CC is presented in Table 3.3. By gestational age, pregnant women were distributed as follows: in the first trimester - 21 pregnant women, in the second and third trimesters - 46 and 21 pregnant women.

In our study, we included pregnant women with deep burns of more than 10% of the body surface, since the literature indicates that deep burns of more than 10% of the body surface negatively affect the outcome of pregnancy.

In the prospective group, in 16 (33.3%) pregnant women, burns constituted >21-30% of the body surface, while in the retrospective group - in 17 (42.5%) pregnant women, burns constituted <31-40%. As can be seen from Table 3.3, the more the body surface is burned, the more the upper respiratory tract (ORT) is damaged. When diagnosing and assessing the severity of CC in the early stages, the presence of DIC is taken into account. Combined tooth injuries with a burn of 15-45 units cause a severe course of burn shock.

Table-3.3

Characteristics of the burn site depending on the severity of the burn in pregnant women with CC (n=88)

Area of the burning depth %	Prospective group n=48				Retrospective group n=40			
	Number of burned pregnant women	I	II	III	Number of burned pregnant women	I	II	III
< 10-20 t.u.	8	8	-	-	5	2	1	-
>21-30 t.u.	16|3*	7	9	-	6|3*	-	2	7
<31-40 t.u.	11|11*	1	10	-	17|3*	2	8	5
>41 and above	13|13*	1	9	3	12|9*	-	7	6
Total	48|27*	17	28	3	40|15*	4	18	18

*Note: * - this symbol indicates TOOTH (42).*

DENTAL INJURY occupies an important place in the overall structure of burn injuries and its relevance is associated with a more severe clinical course in thermo-inhalation injuries, as well as many infectious complications and, most importantly, a higher mortality rate in DENTAL INJURY. According to the literature, with limited dental caries, the overall mortality rate is 20-80%. However, with extensive skin burns, the mortality rate increases to 33-82% [Fayazov A.D. 2019; Karabaev H. K. et al., 2020].

The most objective method for assessing, diagnosing, and predicting the severity of dental caries is tracheofibrobronchoscopy. [Fayazov A.D., 2019].

No2 Clinical picture:

A 30-year-old patient, M., was taken to the hospital in critical condition by ambulance. According to her mother, the daughter, who quarreled with her husband, sprayed herself with gasoline and lit a match. Before being taken to the hospital in an ambulance, the burned pregnant woman was administered 500 ml of sodium chloride and painkillers intravenously.

Upon examination of a thermally affected pregnant woman: general condition is severe, barely answers questions, skin is pale, cold when touching the skin. Due to increased uterine tone, it was not possible to accurately palpate fetal parts and hear the fetal heartbeat. Blood pressure 80/50 mmHg, pulse 125 beats per minute, respiratory rate 26 beats per minute; During fibrobronchoscopy, signs of severe damage were detected: bronchial redness, edema, erythema, and a large amount of soot.Diagnosis: Burns of the face, neck, anterior and posterior surfaces of the body, 65% of limbs, IIIb degree.TOOTH Burn shock of the III degree. Frank Index 195. Pregnancy is 26 weeks. Antenatal fetal death. Taking into account the severity of the burned pregnant woman's condition, it was decided not to terminate the pregnancy for now, as termination of pregnancy may worsen the woman's condition. Hemodynamics is unstable, and urination in the pregnant woman has stopped.

Despite all the indicated resuscitation measures, the injured pregnant woman died on the 4th day of thermal injury from cardiopulmonary and acute renal failure.

а б

Fig.3.9. B.23 years old, No 12861/148, a - fibrobronchoscopy procedure;

b - bronchial obstruction with erythema, edema, and a large amount of soot in the bronchi;

Thus, in our study, we observed that the more extensive the burns and the more frequent the combined dental caries, the more negative outcomes were observed.

Acute respiratory failure in CC can be life-threatening and severe (Jeschke M.G., 2000).

§ 3.3. Features of laboratory and instrumental indicators in pregnant women with burn disease

Thermal trauma in most cases leads to a violation of the functional state of the fetus in pregnant women. When analyzing the causes of perinatal morbidity and mortality, the leading place in burn disease is occupied by fetal hypoxia and asphyxia during childbirth (Ageeva M. I. 2018).

Based on this, we decided to assess the hemodynamic parameters of pregnant women with CC, as well as the functional state of the fetus, and to timely determine the uncertain state of the fetus, which is a pressing problem not only in obstetrics or neonatology, but also in the social life of pregnant women (Table 3.4).

Table.3.4.

Hemodynamic parameters (M±m

Indicatorones	Burn shock n=88								
	Light n=21		Heavy n =47			Extremely heavy n = 20			
	M	m	M	m	p	M	m	p	p1
Pulse/min	88,67	4,37	110,00	3,85	0,011	109.95	2,46	0,007	0,772
ABP $_{middle}$, mm Hg	95,00	2,65	89,94	2,57	0,559	84,00	2,30	0,061	0,062
CVP above water	8,00	0,58	7,76	0,30	0,702	6,55	0,31	0,102	0,013
ABV, ml/kg	70,07	2.16	60,69	1,84	0,039	56,81	1,50	0,006	0,088
APV, ml/kg	37,60	1,25	32,39	1,12	0,050	28,81	1,13	0,011	0,043

Note: P -difference relative to the light type is reliable; P1 - the difference is reliable compared to the extremely severe type;

The data presented in Table 3.4 indicate that burn shock is accompanied by severe hemodynamic disorders. Increased tachycardia with an increase in the severity of burn shock indicates hypermetabolism, while a decrease in circulating blood volume (CBC) in turn reduces the volume of circulating plasma. Despite the above changes, the relatively high average blood pressure in the first hours after burns is associated with an increase in the total peripheral vessel resistance to blood flow.

The main diagnostic criterion for the severity of burn shock is the indicators of peripheral blood and coagulogram, reflecting the systemic level of changes in the body during burn injury (Table 3.5).

Table 3.5

Peripheral blood parameters and coagulogram in burn shock (M±m)

Indicators	Куйиш шоки n=88								
	Light n=21		Heavy n=47			Extremal Heavy n=20			
	M	m	M	m	p	M	m	p	p1
Hemocrite %	46,50	0,35	51,21	0,77	0,009	55,2	1,2	0,011	0.051
Hemoglobin g/l	152,0	0,40	166	1,00	0,007	172	0,8	0,006	0.001
Erythrocyte x1012/l	5,23	0,32	5,30	0,31	0,791	5,2	0,2	1.000	0,647
Leukocyte x 109/l	12	14	14	16	0,005	18	22	0,005	0,000
Band neutrophil %	6	10	12	18	0,006	≥20		0.006	0,000
Lymphocyte %	14	18	8	12	0,008	6	10	0,006	0.003
Platelet x 109/l	160	180	120	160	0,006	105	120	0,006	0.000
ECHT	29	34	35	40	0,005	55	60	0,005	0,000
coagulogram parameters									
Indicators	Burn shock n=88								
	Light n=21		Heavy n=47			Extremal heavy n=20			
	M	m	M	m	p	M	m	p	p1
D-dimer mcg/ml	0,55	0,70	1,02	1,25	0,005	3,71	3,94	0,006	0,000

Blood coagulation time, min	5	10	3,5	4	0,005	≤1		0,006	0,000
Fibrinolytic activity of blood/min	218	287	262	306	0,050	3,45	402	0,006	0,000

The data presented in Table 3.5 show that hemodynamic disorders change significantly depending on the severity of burn shock: a decrease in APH leads to blood thickening, which, as a result of an increase in hematocrit and hemoglobin, an increase in erythrocyte volume, leads to an increase in blood viscosity and a change in the rheological properties of the blood. With impaired microcirculation, blood flow in tissues decreases, especially a sharp slowdown in blood flow through the capillary blood vessels of the lungs and small intesti

In order to study the influence of burn disease on the functional state of the fetoplacental complex in pregnant women, 22 pregnant women underwent Doppler ultrasonography. In half of the pregnant women, preterm labor occurred at 32 to 36 weeks, and in the other half, timely labor occurred at 37-39 weeks.

Doppler examination of uteroplacental and fetoplacental blood flow in these burned pregnant women revealed that in 59% (13) of cases, hemodynamic disorders were noted in various parts of the mother-placenta-fetus complex, more precisely, in the form of increased vascular resistance in the uterine and spiral arteries, umbilical arteries, and their terminal branches (Table 3.6).

Table 3.6.

Frequency of hemodynamic disorders in the mother-placenta-fetus system in pregnant women with grade IIIA-B burn disease

Degree of impairment of blood flow	Number of pregnant women	%

Disorders of intraplacental blood flow	3	23%
BA and SpA disorder	4	30,8%
CA and KATS disorders	6	46,2%

In these vessels, circulatory disorders were identified, which had high prognostic significance in the diagnosis of placental insufficiency, fetal hypoxia, and the development of fetal developmental delay syndrome. It should be noted that these disorders were mainly detected after 36 weeks of pregnancy. Hemodynamic disorders were not observed in 9 (41%) out of 22 pregnant women.

When studying the features of fetoplacental blood circulation, we obtained the following data (Table 3.7). In general, it should be noted that the dynamics of vascular resistance indices in fetal vessels are similar to the corresponding reference values of uncomplicated pregnant women, which indicates an adequate compensatory function of fetoplacental circulation in pregnant women with CC.

Table 3.7.

Dynamics of vascular resistance indicators in the vessels of the fetoplacental system in stage IIIA-B transfusion disease (M±m)

Gestational age/circulatory rate 32-36 weeks 37-39 weeks		32-36 weeks	37-39 weeks
КА	СДМ	3,23±0,23	2,75±0,17
	РИ	0,75±0,14	0,96±0,1
	ПИ	1,13±0,11	0,67±0,08
КАТШ	СДМ	2,17±0,25	1,9±0,17
	РИ	0,49±0,07	0,47±0,11
	ПИ	1,32±0,11	0,48±0,13
ЧБА	СДМ	4,31±0,94	3,46±0,63

	РИ	0,72±0,07	0,7±0,02
	ПИ	0,34±0,06	1,29±0,13
ЎБА	СДМ	4,41±0,12	3,49±0,55
	РИ	0,71±0,07	0,8±0,01
	ПИ	0,33±0.05	1,31±0,11
Аорта	СДМ	5,83±1,42	5,18±1,27
	РИ	0,83±0,16	0,81±0,14
	ПИ	1,63±0,18	1,48±0,16

Further, we focused on the indicators of fetal venous blood flow, since it is a venous channel that participates in the distribution of oxygenated blood from the placenta. Venous blood flow is shown in Table 3.8.

Table 3.8.

Blood flow parameters of the venous canal and inferior vena cava of the fetus in pregnant women with grade IIIA-B burn disease

Хомиладорлик муддати	**Веноз канали**		
	КВ	ИВП	ПИВ
32-36 хафта	1,8±0,07	0,50±0,07	0,51±0,08
37-39 хафта	1,59±0,08	0,43±0,04	0,46±0,03
Vena cava inferior			
	ПИВ	ИПН	%к
32-36 хафта	1,40±0,07	0,43±0,04	0,45±0,4
37-39 хафта	1,0±0,09	1,07±0.09	6,8±0,75

It should be noted that, in general, these data are similar to the indicators of healthy pregnant women with uncomplicated pregnancy. Analyzing the data obtained from Doppler ultrasound of the uteroplacental and fetoplacental vessels, presented in Tables 3.7-3.8, we can conclude that the main hemodynamic changes

are related to the mother-placenta-fetus system with unchanged arterial and venous blood flow. This conclusion is also confirmed by our clinical observation: even in premature newborns in pregnant women with KK, life expectancy indicators were good (the Apgar scale averaged 7-8 points in premature newborns and 8-9 points in full-term newborns).

We present our following clinical observations.

Clinical condition: *Burned pregnant woman S., 30 years old, was admitted to the clinic on 04.12.2019 at 11:00 a.m. with 40% flame burns, burns of the face, head, neck, torso, and extremities of II-III degrees of arterial pressure. Burns of the upper respiratory tract (dental caries II degree). Severe burn shock. Pregnancy is 31-32 weeks. (Fig.3.11)*

Figure 3.11. S., 30 years old. No 4184. Diagnosis: Burns of the face, head, neck, torso, and extremities of II-III degree. Burns of the upper respiratory tract (dental caries II degree). Severe burn shock. Pregnancy is 31-32 weeks.

The time from the moment of burns to hospitalization was 8 hours. The burned pregnant woman was initially transported by ambulance to the clinic of the Department of Obstetrics and Gynecology of the Samarkand Medical Institute, but her hospitalization was refused due to the presence of a burn injury. Blood pressure 115/100 mm Hg, pulse - 126 beats per minute, respiratory rate - 20 beats per minute. Immediately after admission to the combustiology department, anti-shock treatment was initiated: intravenous infusions of glucose, Ringer-Locke, Reosorbilakt, Mannitol, soda solution, and protein were administered. The infusion volume was 2500 ml, 800 ml of water and 1500 ml of soda-salt solution were consumed. The diuresis was 1450 ml. Treatment fibrobronchoscopy was performed 2 times a day with bronchial lavage with 60 ml of a 0.5% antiseptic solution of dioxidine. On the 2nd day, plasmapheresis was performed - 1200 ml of plasma, 600 ml of Ringer-

Locke solution, 500 ml of plasma, and 100 ml of 10% Albumin solution were transfused. From the anamnesis - 3 pregnancies, including 2 deliveries and 1 medical abortion. Objectively: the uterus is in normal tone, the position of the fetus is longitudinal, the lying part is located above the plane of the pelvic inlet of the skull, the fetal heart rate is 130 beats per minute below the navel on the right. Doppler ultrasonography revealed an increase in resistance in the umbilical and uterine arteries, i.e., disruption of uteroplacental and fetoplacental blood flow.

Micronized progesterone was prescribed at 200 mg 3 times per week to preserve pregnancy, and dexamethasone at 8 mg intramuscularly every 8 hours to prevent fetal distress syndrome. However, on the 2nd day after the thermal injury, premature birth occurred, and a male infant weighing 2500 g and 45 cm in length was born with an Apgar score of 7-8 points. The total duration of labor is 7 hours 30 minutes, blood loss is 350 ml. The birth proceeded without complications.

Morphological examination of the placenta revealed hemodynamic disorders due to burns, hemorrhages in the placental tissue, vascular thrombosis, dystrophy, villous necrosis and proliferative processes, focal and diffuse sclerosis of villi and decidual tissues (Fig. 3.10).

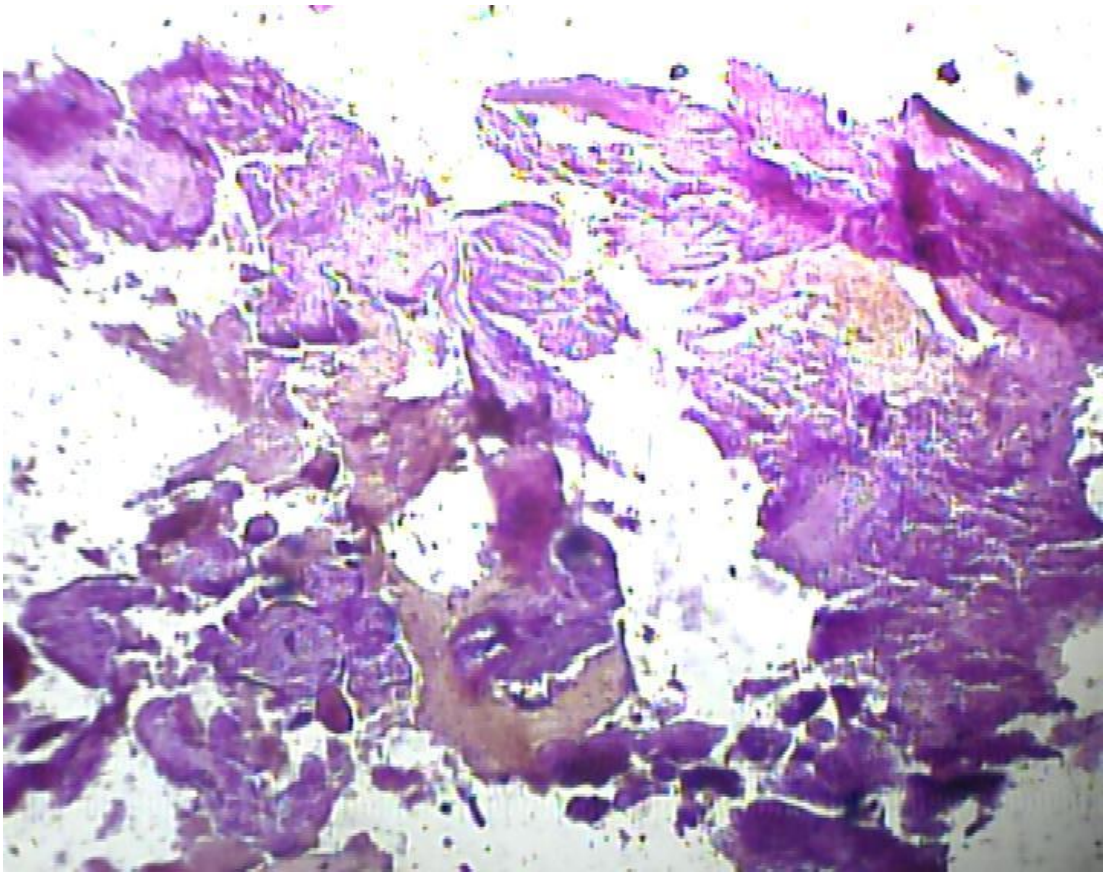


Figure 3.10. E.24 years old, No7475. Hemorrhage into the placental tissue, villous necrosis.

No4 Clinical presentation: *In severe burns, the outcome is favorable for the mother and fetus.*

Burned pregnant woman Kh., 23 years old, was transferred to the combustiology department from the sub-branch institution at 15:30 on January 29, 2004, one day after receiving a thermal injury (fire in her house). Diagnosis: 50% burns of the face, neck, back, and hands in flames of I-III A degree. Severe shock. DENTAL II degree. Pregnancy II. 32 weeks. Risk of premature birth. Chronic anemia is moderate. 3 hours after admission, examined by an obstetrician-gynecologist: in the first delivery, macrosomia (3900g), weak labor force was observed. This pregnancy occurred against the background of anemia. Objective examination: abdomen enlarged due to the pregnant uterus. On palpation, the fetus is in a longitudinal position, the anterior part of the fetal head is located above the pelvic inlet plane, the fetal heart rate is 140 beats per minute, uterine tone is normal. Vaginal discharge is mucous. For the purpose of preserving pregnancy, micronizirated progesterone 200 mg 3 times per vag. was prescribed. Considering the pregnant woman's severe shock condition, a blood transfusion was performed. Replacement of wound dressings was carried out under intravenous administration of ketamine 100 mg.

Despite conservative treatment, labor activity began on the 13th day of the burn, premature birth occurred, and a male premature baby was born, weighing 2700 g, height 46 cm, with an Apgar score of 7-8 points. The total duration of labor was 5 hours 25 minutes, total blood loss was 200 ml, no complications were observed during labor.

Burn disease is complicated by left-sided focal pneumonia, abscess of the left lung. Antibacterial therapy with a positive effect (Ceftriakson) and autodermoplasty were performed three times: 700, 150 and 40 cm2 of skin. The woman who gave birth to a burn was discharged home in satisfactory condition. (Fig. 3.12).

Figure. 3.12. X., 23 years old. No 7465. Autodermoplasty process.

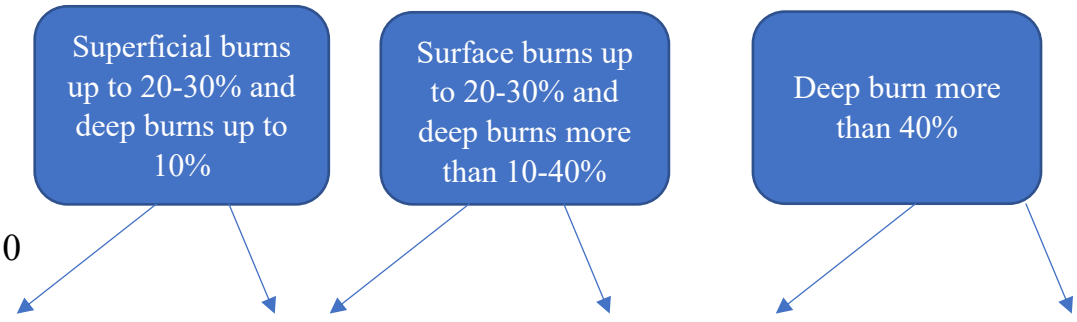
Thus, the factor determining the outcome of thermal injury for the mother and fetus made it possible to determine the dependence of the severity of the burn mainly on the area of the deep burn, the presence of thermal injury, the timely and correct appointment of infusion therapy, and the gestational age.

In the literature, it is noted that superficial burns of more than 20% of the body surface lead to miscarriage and premature birth (O. D. Dmitriyenko).

Cesarean section was performed on 3 (6.24%) deceased pregnant women with severe deep burns, and newborns were taken with an Apgar score of 6±1.0. The cause of the pregnancy termination, in our opinion, was not placental circulation, but the mother's serious condition.

Obstetric tactics depending on the gestational age and the degree of burns are shown in Figure 3.13.

Obstetric tactics depending on gestational age and degree of burns



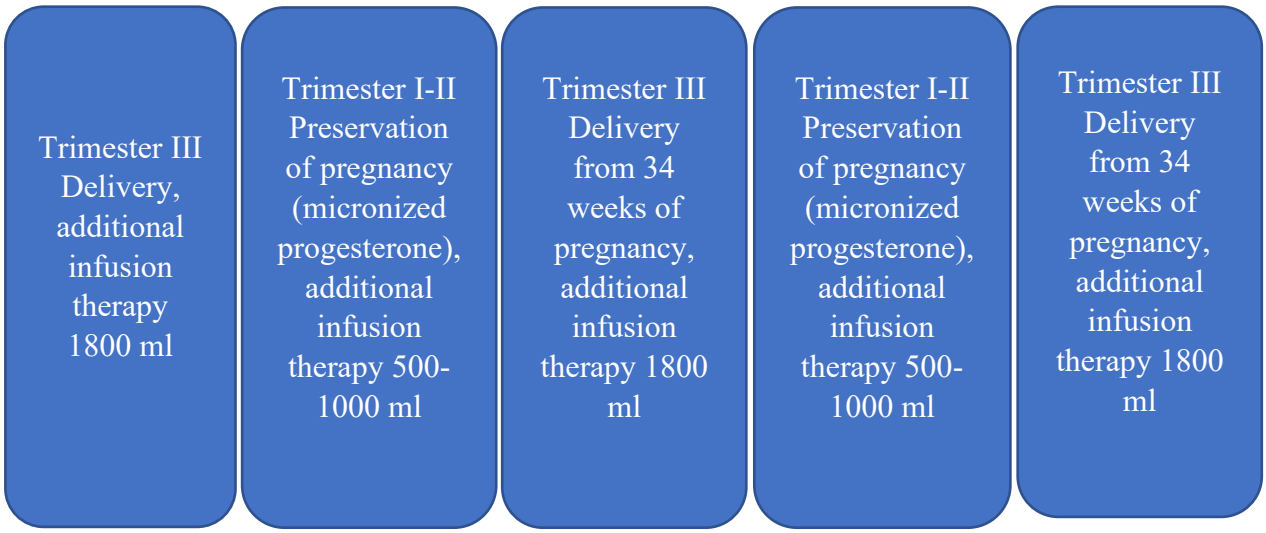


Figure 3.13. Algorithm for managing affected pregnant women

In addition to traditional treatment methods, adequate and timely complex therapy for pregnant women with burn disease prevents disorders in the mother-placenta-fetus system and prevents the development of disorders in this system, and also helps to increase the likelihood of a favorable outcome of pregnancy and reduce perinatal morbidity. Based on the study, an algorithm for managing pregnancy and childbirth in pregnant women with burn disease in different trimesters of pregnancy was developed,

Summary of Chapter III

Thus, the correct organization of specialized treatment of burned pregnant women, the development of an algorithm for its implementation, as well as the introduction of new diagnostic methods into practice, made it possible to improve the quality of medical care for pregnant women with thermal injuries; the timely and correct use of modern therapeutic and preventive measures made it possible to save and reduce the disability of pregnant women with severe burns and their fetuses.

Chapter IV.

RESULTS AND CONSEQUENCES OF TREATMENT OF PREGNANT WOMEN WITH BURNING DISEASE

The history of therapeutic treatment of thermal burns goes back centuries. Various medicines are used for treatment, and their number currently exceeds 3000 [B. A. Paramonov et al., 2016; Alekseev A. A. et al., 2021].

We have developed new improved methods for managing pregnant women with CC, which, in turn, has reduced maternal-perinatal morbidity and mortality.

4.1. Retrospective analysis of management and traditional treatment of pregnant women with burn disease.

We analyzed the medical histories of 40 pregnant women with thermal burns in the retrospective group for the period from 2004 to 2013. We found that with deep burns of more than 10% of the body surface, the development of characteristic signs and complications of CK, the severity and prognosis of the disease mainly depend on the area of deep burns and the presence or absence of TOO.

Burn shock was noted in 29 (56.3%) of the victims. Acute burn toxemia (early psychosis, hyperthermia) was observed in 12 (25%) and septic toxemia (sepsis, pneumonia, pyelonephritis) in 9 (18.7%) pregnant women.

When assessing the consequences of burn shock, we used data from the total burn area, FI. When comparing these indicators, satisfactory, questionable, and unsatisfactory outcomes were observed in burn shock (Table 4.1).

Table 4.1

Sequelae of burn shock

Consequences	Total burn area (%)	ФИ		ЮҚ
		ТИШ сиз	ТИШ билан	
Satisfactory n=10	10-39.	30-79	30-70	60 гача
Suspicious n=17	40-60	80-120	71-100	65-70
Unsatisfactory n=13	More than 60	more than 120	more than 100	70-100

Upon admission of the victims to the hospital, pregnant women were divided into three main groups according to the diagnosis and outcome of burn shock: Group I - extremely severe burns, requiring resuscitation, unsatisfactory outcome (13 pregnant women); Group II - severe burns, requiring resuscitation, with a questionable outcome (17 pregnant women); Group III - pregnant women with burns with a satisfactory outcome (10 pregnant women) in need of resuscitation.

Intensive infusion-transfusion therapy is the main part of the treatment of burn disease. In the acute period of thermal burns, excessive or, conversely, insufficient infusion therapy can lead to an increase in the number of complications and increase the mortality rate in pregnant women with CC.

In the retrospective group, the approximate volume of traditional infusion agents administered to a burned pregnant woman on the first day of burn shock was calculated according to the formula proposed by E. Evans in 1952:

V=2 ml x burn area % x body weight kg + 2000 ml 5% glucose solution.

This formula was used for burns of less than 50% of the body surface. In severe shock, crystalloids and colloids were used in a calculated volume of 2/3 of the crystalloids and 1/3 of the colloids, and in severe shock with burns of more than 50% of the body surface, crystalloids and colloids were used in a 1:1 ratio.

Considering that burn shock can last up to 3 days, infusion therapy was carried out continuously.

On the first day of mild burn shock, if the victim's body weight was 70 kg, infusion-transfusion therapy was carried out in the amount of 4000 ml. On the second day, the infusion volume was doubled, i.e., 2200 ml of fluid was added. On the third day, it was reduced by 3 times compared to the first day. On the first day, at least half of the daily volume calculated for the first 8 hours after the burn was administered. In the absence of vomiting in the affected pregnant woman, 1000-2000 ml of a saline-alkaline mixture was administered per os, but saline solutions were excluded from infusion therapy.

With severe burn shock, if the woman weighed 70 kg, infusion-transfusion therapy was administered in the amount of 6000 ml on the first day and 4500 ml on the second day.

In severe burn shock (weight 70 kg), infusion-transfusion therapy in the amount of 6400 ml was carried out on the first and second days. 1 BR of insulin was administered for every 4 grams of glucose.

In the choice of infusion therapy agents, a preference was given to colloidal preparations: isogenous protein preparations (Albumin 10-20%, GEC 6% 250-500ml), as well as medium and high molecular weight colloidal synthetic plasma substitutes (Reopoliglukin 10% - 400ml and Polyglukin 33%-400ml solutions). In severe shock, the ratio between protein, colloidal, synthetic, and low-molecular-weight solutions was 1:1:1, and in DIC, the dosage of protein preparations was increased in a 2:1:1 ratio, and saluretics (Laziks-40-60 mg) were also prescribed.

New treatment method. During the retrospective analysis of the medical history of burned pregnant women, we were prompted to search for and develop a new method of infusion-transfusion therapy, taking into account the management of pregnant women with burns, a reduction in the number of complications, a decrease in maternal and perinatal morbidity and mortality, and the specifics of pregnancy. Based on this, we have developed:

Firstly: in the treatment of burn shock, unlike the traditional method (glucose was not used), depending on the gestational age, we recommend additional infusions of crystalloid solutions in the 1st trimester + 500 ml, in the 2nd trimester + 1000 ml, in the 3rd trimester + 1800 ml; Sodium chloride, Ringer's lactate, and Reosorbilakt solutions are recommended as detoxifying agents. If infusion therapy was started 2 hours after the burn, then half of the calculated amount of fluid is administered within 6 hours, and for this purpose, an angiocateter (16G-18G) is inserted into the 2nd vessel. Since our main goal in conducting infusion therapy was aimed at filling blood vessels and restoring sodium content, we used more Ringer's lactate and physiological solutions.

Secondly: since burns in burned pregnant women develop a strong stress state and pose a high risk of pregnancy termination, micronized progesterone should be prescribed per.os, per.vag. or per.rec. depending on the location of the burn wound up to 36 weeks of gestation for the purpose of preserving the fetus;

Thirdly: in cases of large-scale deep severe burns of pregnant women, at least in order to save the life of the fetus, it is necessary to perform a cesarean section on a dying pregnant woman;

Burns are an additional shock for pregnant women. In most cases, burns caused miscarriage or the onset of labor. On average, labor or miscarriage occurred within 2.1±0.4 weeks after the burn. In 15% of pregnant women, spontaneous

miscarriage ended, in 39.5% - with preterm labor, and in 42.5% - with term labor. Micronized progesterone ("Utrojestan," "Fetalston") was prescribed to all pregnant women up to 36 weeks of gestation, depending on the location of the burn wound (for example, per.vaginum or per.rectum in dental caries).

For the prevention of uncertain fetal condition, dexamethasone 6 mg 2 times a day for 2 days (total 24 mg) was prescribed from 24 to 34 weeks of pregnancy.

The outcome of pregnancy and childbirth in the victims depended on the duration of pregnancy, the severity of the burn, premorbid background, and many other similar factors. Cesarean section was performed according to obstetric indications (scar on the uterus - 4.16%, misplacement of the fetus - 2.08% and unclear position of the fetus - 6.24%).

In our study, in 3 (6.24%) cases, a dying pregnant woman with severe burns underwent at least a cesarean section to preserve the fetus, and the lives of full-term newborns with a live fetus weight of 3050.0±175 were saved.

Assessment of the outcome of pregnancy and childbirth was carried out on the basis of assessing the condition of the newborn and the woman who gave birth. Our study showed that in 36 women, pregnancy and childbirth ended satisfactorily. A total of 5 perinatal diseases were identified, of which 3 (7.5%) were asphyxia, 1 (2.5%) was a hypo-ischemic disorder of the central nervous system, and 1 (2.5%) was an intrauterine infection.

Timely and effective treatment of burn disease, rational management of pregnancy depending on the severity of the disease and the duration of pregnancy, the choice of the optimal method of delivery, a reduction in perinatal morbidity and mortality, and a reduction in the number of obstetric complications were achieved. Timely and qualified provision of emergency medical care, prompt delivery of patients to the specialized combustiology department, and timely involvement of obstetrician-gynecologists and other narrow specialists in the treatment process are of great importance.

In the course of our research, we were convinced that the clinical course of burn injuries in pregnant women and the processes developing in the wounds were determined primarily by the nature and depth of the wound. We did not reveal the specific features of the course of the wound process in pregnant women in our study. In superficial burns of the II degree, the duration of independent epithelialization was 7-8 days, and in the III A degree - 18-21 days. In cases of deep burns (IIIB - IV degree), autodermoplasty was performed on average within 25-30 days after injury. Treatment was carried out according to generally accepted methods using ultrasound diagnostics and a controlled microclimate ("Clinitron") through the joint efforts of a combustiologist and a gynecologist. Doppler examination of uteroplacental and fetoplacental blood flow in pregnant women with thermal burns revealed the main hemodynamic disorders - increased vascular resistance in the uterine and spiral

arteries, umbilical arteries, and their terminal branches. In this regard, for the purpose of improving placental blood circulation and as an antioxidant, L-arginine was administered intravenously daily at a dose of 100 ml.

Dressing replacement and other active interventions were performed under intravenous anesthesia (ketamine 2 mg/kg or fentaline 5 mg/kg). Drugs with teratogenic activity were excluded from the treatment complex.

In cases of deep burns, we focused on the removal of necrotic tissues as quickly as possible, that is, on the prevention of septic conditions. Bloodless, economical, step-by-step necrectomy was performed in burned pregnant women, and granulation wound preparation was carried out for surgical restoration of the skin.

In 48 pregnant women of the prospective group of our study, deep burns of the IIIB - IV degree were observed from 15 to 55% of the body surface. Of these, 27 (56.2%) underwent surgical interventions on 10 to 30% of the body surface after burn epithelialization of I-II-IIIA degrees.

Due to the severe condition of burned pregnant women (pneumonia, POI), the surgical intervention was performed on average after 25.5±1.0 days. In 18 (37.5%) pregnant women, economical step-by-step necrectomy was performed on an area from 7.5 to 12.5% of the body surface. Necrectomy was performed in 4 (8.33%) patients in the first trimester of pregnancy and in 17 (35.4%) patients in the second trimester.

Figure 4.1. Necrectomy procedure. P. 22 years old, medical history No12403/143.

An important issue is the assessment of the outcome of the injury for the mother and fetus. 3 (6.24%) pregnant women with burns of 10-12% of the body surface of II-IIIA-B degree were transferred to a specialized maternity hospital due to the onset of labor activity, and all of them had full-term deliveries. In 5 (10.4%) pregnant women with burns of 10-15% of the body surface of IIIA-B degree, full-term labor was complicated by secondary weakness of labor force. In 4 (8.33%) patients with deep burns of more than 20% of the body surface, within 1-3 days after the injury, by days 4-5, in 9 (18.8%) the pregnancy ended in spontaneous miscarriage.

Premature births were observed in 11 (22.9%) women within 15-20 days of thermal injury, and full-term births in 3 women. In 3 (6.24%) women with deep burns of more than 30% of the body surface during septicotoxemia, a cesarean section was performed on a dying pregnant woman at 38-39 weeks of gestation, and the fetus survived.

Depending on the type of damage to the tracheobronchial tree (TBD), catarrhal (in 9 patients), erosive (14 patients), and ulcerative-necrotic (in 9 patients) lesions were distinguished, corresponding to mild, moderate, and severe DICs or injuries of I, II, and III degrees.

A total of 107 FBS were performed, of which 73% were performed within the first 3 days. In the victims, FBS was performed within the first 6 hours after the burn, and the burn deposits were easily removed (in 18 patients). FBS was performed once a day in 24 (50%) patients with moderate TBD damage, and 2-3 times a day in 29 (60.4%) patients with severe TBD damage.

In FBS practice, TBD was cleared of soot in 18 (37.5%), formed scabies in 19 (39.5%), and sputum in 32 (66.6%). For therapeutic purposes, FBS was performed under local anesthesia with a 2% lidocaine solution (trimekain) in 23 (47.9%) patients with independent breathing and in 9 patients with artificial lung ventilation through an intubation tube.

For the treatment of dental caries and its complications, bronchi were rinsed with isotonic sodium chloride solution, Ringer-Locke, 0.25% novocaine, furacilin 1:5000, 0.5% dioxidine, 0.5% metrogyl, and 0.5% propolis solutions. In addition, mucolytic and antibacterial agents were instilled. At the same time, to prevent the detached necrotic tissue from posing a risk of asphyxia, necrolytic drugs were administered with caution (to 11 pregnant women).

All pregnant women underwent oxygen therapy, mucolytic, antibiotic, and corticosteroid inhalations with ultrasound up to 6-8 times as indicated.

At the same time, preference was given to drugs with high oncotic pressure, concentrated glucose, dextran solution, and a protein preparation. In 23 (47.9%) patients with DIC II-III degree, heparin was administered in simple doses,

symptomatic therapy aimed at eliminating bronchospasm and improving the drainage function of TBD. Antibiotics such as ceftriaxone, bactamide, gentamicin, and metronidazole were prescribed to prevent infectious complications.

To assess the effectiveness of therapeutic FBS, a comparative analysis o

During 2004-2008, the mortality rate decreased by 13 (32.5%) ($p<0.05$) when burns were accompanied by dental caries without the use of FBS, and by 3 (6.25%) ($p<0.05$) after the use of FBS in 2009-2022.

In the preoperative treatment of localized burns of the III A degree and deep burns of the IIIB - IV degree, various wound dressings ("coletex," "xenoderm," amniotic membrane of the fetus) were used. Placement of the amniotic membrane of the fetus in the burn wound prevented the loss of protein, water, and electrolytes through the wound surface and stimulated the development of regenerative reparative processes. The amniotic membrane was highly elastic and firm, preventing the development of infection in the wound.

а **б**

Figure 4.2.a-excising a healthy skin surface with a dermatome; b-autodermoplasty procedure.Sh.26 years old, medical history No11272/128.

Out of 21 patients, 14 (66.67%) underwent stage I autodermoplasty, 3 (14.2%) underwent stage II autodermoplasty, and 4 (19.0%) underwent stage III autodermoplasty, a total of 47 times (from 500 to 850 mm), on average 2.25 times per patient. Skin recovery after autodermoplasty increased with an increase in the area of deep burns and averaged 25.5±1.0. Since autodermoplasty lysis was observed in 30% of the skin surface in 4 (8.33%) patients, repeated autodermoplasty was performed on an area of 100-150 cm2 with a positive result. Due to suppuration

of the wound in 8 (12.3%) out of 58 donor zones, autodermoplasty was required in an area of approximately 150 cm.

In the remaining donor areas, the wounds healed within 12-16 days. 15 (31.2%) affected pregnant women were discharged home. Of these, 2 (4.2%) women were born alive with a body weight of 2150-2275 g and 1 (2.08%) dead fetus with a body weight of 1105 g on the 8th day after autodermoplasty.

After ADP, bilateral bronchopneumonia developed in 3 (6.25%) cases, and complications such as hypoproteinemia and anemia developed in 7 (14.5%) cases.

§ 4.2 Complications and consequences of thermal injury in pregnant women

A study of the degree of organ-systemic damage in pregnant women receiving complex conservative-surgical treatment in the prospective group showed that multiple organ failure (MRP) was observed in all 48-100% of pregnant women with thermal trauma, and in most cases, in 45 (93.7%) cases, a combination of dysfunction of three or more organs and systems was detected (Table 4.2).

Table 4.2

Structure of organ and system dysfunction in pregnant women with burn disease

Organs and systems	Trimester			Total	
	I n=17	II n=28	III n=3	Number of complications %	P
Breathing	12	19	3	34 (70,8%)	0,508
Cardiovascular	11	25	3	39 (81,3%)	0,085
Central nervous system	17	28	1	46 (95,8%)	0,000
Kidneys	15	26	3	44 (91,7%)	0,746
Liver	5	8	3	16	0,041
Gastrointestinal system	-	5	3	8	0,000
Hemostasis	14	27	3	44 (91,7%)	0,219
Total	17	28	3	231	

Thus, in 46 (95.8%) pregnant women with burn disease, lesions of the central nervous system (encephalopathy, delirium, or impaired consciousness) were detected in POI syndrome. A similarly high indicator of renal dysfunction was observed in 44 (91.7%) of the affected pregnant women, and hemostasis disorders in 44 (91.7%) cases. In the next place is damage to the cardiovascular system in 39 (81.3%), respiratory tract in 34 (70.8%) pregnant women, which indicates the homilador's identical response to hypoxia and metabolic acidosis under the influence of thermal injury. In the course of our research, we were convinced that the severity of thermal injury (deep burn area 10% or more) is a leading factor in the development of dysfunction of vital organs and systems, which largely determines the outcome of treatment.

Among the deceased, extensive skin burns with dental caries (47.7%) prevailed. These pregnant women were admitted to the clinic in extremely severe burn shock (FI - more than 100). In the early stages of the burn shock and toxemia period, fatal outcomes were noted in 16 (18.1%) women with a poor and questionable outcome (n=88). The main cause of death was multiple organ failure of 2 or more organs and systems.

The widespread use of the optimized diagnostic and treatment methods in our study contributed to a decrease in the mortality of burned pregnant women from 32.5% (n=40) to 6.25% (n=48).

§ 4.3. Long-term consequences and post-burn complications that can lead to maternal and fetal mortality

Long-term results were studied in 45 (93.7%) patients. 48 women were discharged home in satisfactory condition after a thermal injury. The terms of catamnestic observation were from 3 to 5 years. Of the observed patients, 21 (46.7%) became pregnant after burns. Various complications occurred in 39 (81.2%) patients. In 18 (37.5%) women, combined contractures were observed, in 20 (41.6%) - keloid scars, in 5 (10.4%) - depigmentation and skin cracks. Characteristically, the above-mentioned complications were observed in women with third-degree blood pressure burns of more than 10% of the body surface.

Surgical interventions were performed in 18 (37.5%) women. In this case, the keloid scars were removed, and the wound surface was covered with autoderm. In other cases, restoration of joint mobility and regression of keloid scars were achieved by the conservative method. With the help of the procedures performed, it was possible to eliminate or reduce the consequences of burns: in 42 (87.5%) women with deep burns, a good result was observed, in 2 (4.4%) - satisfactory, and only in 1 (2.3%) - a negative result.

No significant changes in the reproductive function of women were detected in the post-traumatic period. At the time of the injury, 39 women were married, six were unmarried. 4 patients (18-20 years old) with superficial burns of 15% II-IIIAB

degree got married a year after the injury. Three patients with severe burns (24.27 and 30 years old) divorced for social reasons not related to burns.

According to the survey results, most women lead a regular sexual life, with the exception of 1 woman (group 2 disabled), i.e., with post-thermal trauma scars and contractures of the joints: burns of the face, neck, back, abdomen, limbs of II-IIIAB degree (40%). In 5 of the victims, pregnancy proceeded without complications, followed by full-term delivery. Various types of contraception are used to prevent pregnancy: IUDs, COCs, the barrier method, and surgical contraception for those with a sufficient number of children in the family.

When analyzing the identified disorders of menstrual function, it was established that their severity directly depends on the depth and area of the burn. In thermal burns of I-IIIAB degree, menstrual cycle disorders (menstrual delay, algodysmenorrhea) in more than 10% of the body area in 50% of cases, in IIIB - IV degree burns - in 90% of women, caused the development of secondary amenorrhea (43%).

In only 2 patients with 10-20% deep and superficial burns, menstrual cycle disorders were not observed.

During the study of the victims, 5 types of burn complications associated with pregnancy termination were identified. In most cases, several complications were observed simultaneously in one patient, and the termination of pregnancy and the death of the pregnant woman occurred very quickly in succession.

1. Hypotension. The most easily treatable complication of burns is hypotension and a decrease in heart rate, which arose as a result of delayed or insufficient initial resuscitation measures. The only most effective way to assess the effectiveness of infusion therapy in burn patients is to determine the amount of urine excreted, i.e., to ensure urine output of 30-50 ml/hour.

In our study, anuria and oliguria were considered as evidence of early insufficient infusion or delayed infusion. This complication was observed in 3 women. In one of them, antenatal fetal death was observed on the 5th day of the burn due to oliguria caused by a 24-hour delay in fluid infusion and numerous complications.

In another patient, anuria lasted 14 hours, and on the 2nd day after the burn, a miscarriage occurred. In the 3rd victim, anuria lasted 12 hours, and on the 6th day after the burn, preterm labor occurred, resulting in the birth of a fetus weighing 1150 grams. We hypothesize that some cases of preterm birth and miscarriage occurring within a week after a burn, as noted in the studies of Subrahmanyam M. (2006), Chama C.M. (2002), Parikh P. (2015), may be the result of insufficient fluid intake and prolonged hypotension.

We believe that hypovolemia and hypotension, caused by insufficient fluid drainage during resuscitation after burn shock, can affect the amount of uterine blood flow, just like in hemorrhagic shock.

Thus, delayed resuscitation or insufficient fluid intake can lead to developed hypotension, antenatal fetal death, or premature birth. Therefore, to quickly correct intravascular fluid insufficiency and ensure satisfactory tissue perfusion, it is necessary to be more vigilant than usual when transfusing fluid to burned pregnant women and during resuscitation.

2. Hypoxia. As mentioned above, large burns are often accompanied by difficulty breathing. In our study, a temporary relationship was observed between respiratory distress, the development of hypoxia, and the termination of pregnancy in 4 burned pregnant women. In one patient, when the RO2 level in arterial blood was 47 mm Hg, miscarriage and bronchopneumonia occurred. In another victim, bronchopneumonia developed on the 30th day of the burn, RO2 in the arterial blood on the 14th day after the burn was equal to 65 mmHg, gave birth to a fetus weighing 680 grams, and died the next day. Before antenatal fetal death, pneumothorax and bronchopneumonia developed in the 3rd victim, RO2 in the arterial blood was 60 mmHg. In the 4th patient, bilateral bronchopneumonia developed after the birth of a fetus weighing 850 grams. Although the gas content of the blood was not measured at this time, the patient's fetus died 6 hours after birth.

In several patients under our observation, the simultaneous development of hypotension and hypoxia was observed; These complications had a detrimental effect on the fetus, reducing blood flow in the uterus. In such cases, it is necessary to provide the pregnant woman with adequate oxygenation. This is especially true in cases of developing respiratory complications in pregnant women before their admission to the hospital. In relatively mild cases, the introduction of oxygen through the nasal tube is sufficient. It can increase a pregnant woman's oxygen supply, often by giving her a half-squat position.

3. Sepsis. Common infection and septic shock are general terminal states of the final stage in patients with extensive deep burns. In our study, sepsis was detected in 5 cases (10.4%). In one patient, on the 19th day after the burn, Providencia and Pseudomonas bacteria were detected in the blood culture. In this patient, Pseudomonas bacteria subsequently developed wound sepsis, and the septic state persisted until the 36th day of the illness, resulting in miscarriage. Aerobacter and Staphylococcus aureus bacteria were found in the blood of another patient on the 11th day after the burn, and Providencia by the 14th day. On the 15th day after the burn, premature birth occurred, and an immature fetus was born. When culturing placental tissues, the growth of Providencia stuarti was determined in the amount of 107 CoE colonies per 1 g of tissue. In another patient, hypotension and sepsis led to antenatal fetal death. Blood tests revealed Pseudomonas bacteria.

In the 5th patient, premature birth of a premature fetus was also observed, and during blood analysis, bacteria Klebsiella, E. Colli, and Providencia were detected.

Sepsis can affect pregnancy in two ways. First, indirect pathway; hypotension developed in the mother as a result of septic shock leads to a decrease in uterine blood flow. Second, direct route; placental infection found in one of the patients.

Sepsis, developed in burn patients, requires intensive treatment. One should always be vigilant in the early signs of sepsis, changes in consciousness, gastrointestinal dysfunction, hypothermia, and impaired glucose production.

If sepsis is suspected, a blood test is necessary for the correct diagnosis and selection of an effective antibiotic. In addition to treatment, the most effective antibiotic against this pathogen should be chosen, and the doctor should determine whether the source of the septic infection is a burn wound, pneumonia, or an intravenous catheter. It should be noted that one of the patients developed sepsis caused by Staphylococcus aureus, and the source of infection was a piece of catheter taken from the central vessels, and the mother and fetus survived when treated with an antibiotic sensitive to the patient.

4. Disruption of electrolyte composition in the blood. In patients with extensive burns, the electrolyte composition of the blood is often disrupted. In 5 patients, hyponatremia caused by blood dilution was observed. We cannot say whether hyponatremia directly affected the onset of labor in these patients, since other complications were observed simultaneously in both of them. In patient 3, hyponatremia caused by blood dilution may not be associated with preterm labor, which ended with the birth of a baby with a body weight of 2500 g, since her gestational age was 37 weeks, and she did not need stimulation to induce labor. Thus, burns in the blood of pregnant women require a very careful approach to the violation of the electrolyte composition.

5.Fatty liver dystrophy. In our study, a serious complication that led to antenatal fetal death in one of the patients with thermal injuries was fatty liver dystrophy, which developed during pregnancy. For the treatment of infection in burned pregnant women, it is forbidden to use drugs with a teratogenic effect. Adverse drug reactions are a major problem in the development of complications. The doctor should check the possible side effects of each medication prescribed to the pregnant woman.

END

Currently, issues of population and health protection are extremely relevant. Women play a leading role in shaping the health of future generations. Therefore, caring for the health of future generations is currently one of the main tasks in our republic. Over the past 20 years, significant progress has been made in the treatment of burns. Improvement of infusion-transfusion therapy methods has led to a significant decrease in mortality during burn shock. Obstetric and surgical technologies, i.e., Doppler ultrasonography to assess the fetoplacental system, according to the algorithm for managing burned pregnant women, depending on the trimester of pregnancy and the area and depth of the burn, preservation of pregnancy or delivery, as well as removal of burn scabies using fibronchoscopy and the use of economical methods of skin grafting, made it possible to treat severe and extremely severe injuries. At the same time, some issues are still poorly studied. Every time a pregnant woman suffers thermal injury, many questions arise about the tactics of their treatment. In particular, obstetricians and gynecologists are bothered by the question of whether it is necessary to terminate the pregnancy. There is also no precise information on the consequences of burns causing fetal development and their prevention measures. Pregnant women with thermal injuries admitted to the combustiology department are usually examined by a gynecologist in the first hours, but they have difficulty giving accurate recommendations. This is mainly due to the lack of research on this issue.

Burn disease manifests as a disruption of the homeostatic mechanisms of oxygen transport and utilization due to the appearance of circulatory, hemic, and tissue forms of hypoxia. Large-scale tissue damage and "respiratory explosion" lead to the emergence of reactive oxygen species capable of damaging biological macromolecules. It follows that the use of various drugs with antioxidant and antihypoxic effects is pathogenetically justified, but the optimal regimens for taking such drugs have not yet been determined.

Thus, the development of treatment methods for burned pregnant women remains one of the urgent tasks. Considering the above, we planned and achieved the improvement of management, diagnostics, and treatment measures in order to reduce the incidence of pregnancy complications, maternal and fetal morbidity, and mortality in pregnant women with burn disease.

An important direction of our research is the justification of obstetric tactics in the development of methods for the prevention of burn complications in the mother and fetus. Considering the pregnant woman's condition at the time of the burns, this tactic is suitable for resolving labor. Choosing the right delivery program is the basis for success in maintaining the health of the mother and fetus.Rational treatment with timely diagnosis is important for the course of pregnancy and achieving a positive outcome. The simplest, most convenient, and most informative method of monitoring the state of the fetoplacental system during pregnancy is

hearing the fetal heartbeat, conducting ultrasound and Doppler ultrasound examinations. Treatment of placental dysfunction is closely related to the treatment of fetal hypoxia.

Placental function can be improved in several ways: by dilating the vessels of the uteroplacental complex, relaxing the uterine muscles (tocolysis), improving the metabolism of the myometrium and placenta. Improvement of treatment methods for burned pregnant women reduces the degree of disruption of the reproductive function of the female body.

Thermal injury, depending on the area and depth of the injury, the severity of burn disease, can lead to various disorders of hormonal hemostasis and specific functions of the pregnant woman's body and negatively affect the course and outcome of pregnancy.

In our scientific work, in accordance with the goals and objectives of the study, the features and results of complex treatment of victims with deep and extensive burns in pregnant women and women of childbearing age were studied. This clinical study was conducted from 2004 to 2022 at the clinical base of the Combustion Department of the Samarkand City Medical Association No. 1, the Combustion Department of the Samarkand Branch of the RSCEMC, and the clinical base of the Samarkand City Maternity Hospital No. 3. In accordance with the goals and objectives of the study, 138 pregnant women were selected in our scientific work, of which 50 (36.2%) were healthy pregnant women, 88 (63.8%) were pregnant women with burns. We divided pregnant women with burn disease into 2 groups:

1. prospective group - 48 (54.5%) pregnant women who received treatment for burn disease using the improved method.

2. retrospective group - 40 (45.5%) pregnant women who received traditional treatment for burn disease.

The age of the pregnant women in the study ranged from 19 to 32 years, averaging 25.4 ± 5.1 in all three groups, with pregnant women aged 21-30 years (66.7%) predominating.

In the prospective group, the duration of sexual life was up to 1 year in 2 (4.2%) pregnant women with burns, from 1 to 2 years in 35 (73%), from 2 to 3 years in 3 (23%) and more than 3 years in 8 pregnant women. In the retrospective group, the onset of sexual life was up to 1 year in 3 (7.5%) pregnant women, up to 2 years in 23 (57.5%) and more than 3 years in 14 (35%) pregnant women, respectively. Among healthy pregnant women, the first pregnancy was in 12 (24%) pregnant women, the second in 30 (60%) and the third in 8 (16%) pregnant women; in the prospective group, the first pregnancy was in 7 (14.6%), the second in 38 (79.2%) and the third in 3 (6.2%) pregnant women, respectively, while in the anamnesis of pregnant women in the retrospective group, one delivery was recorded in 25

(62.5%), two deliveries in 12 (30%) and three deliveries in 3 (7.5%). In healthy pregnant women and pregnant women of the prospective group, the second pregnancy prevailed, while in the retrospective group, the first pregnancy was 62.5%.

In 57 (64.8%) of the victims, the cause of burns was a flame, of which in 27 (30.6%) cases it was self-ignition ("live torch"), in 18 (20.5%) - hot water, and in 13 (14.7%) pregnant women it was the explosion of a gas cylinder. The attempted suicide was often demonstrative or blackmail. They were committed in a state of acute affect and were unable to properly control their actions. Our research showed that cases of thermal burns mainly occurred at home.

The main part of pregnant women with thermal injuries was 60%-72.5%-56.3% from rural residents, and 40%-27.5%-43.7% from urban residents. The fact that most burned pregnant women live in the countryside, we attributed to their living conditions, that is, the use of kerosene or gasoline for lighting a flame when cooking food in the oven, baking bread in the tandoor.

When studying the level of education of burned pregnant women, housewives predominated in all groups (56%-52.5%-50%). Among burned pregnant women, workers (27.5%-31.3%) have more diplomas than healthy pregnant women (2%), educated healthy pregnant women (14%) and burned pregnant women (5%-2%). It can be concluded that the lower the level of education, the more cases of self-immolation occurred. Students (28%-15%-16.7%).

Among the somatic diseases in women with thermal burns, anemia (45.8% and 60%), chronic bronchitis (10.4% and 7.5%), and chronic hepatitis (8.3% and 5.0%) were most common. Although these diseases are not related to the occurrence of CC, they have a negative impact on the course of burn disease.

75% of pregnant women were admitted to the clinic within the first 6 hours after a thermal injury. 25% of burned pregnant women applied to district hospitals 72 hours after burns, when treatment was ineffective. In the course of our analysis, we became convinced that the results of pregnancy in the victims, in the development of burn disease, have a direct correlation with the timing of the initial qualified medical care provided.

In our observation, 79.2%-70% of pregnant women missed the precious first 6 hours without adequate fluid intake. We did not find significant differences in either group.

The area of thermal burns was assessed according to the "nine" rule proposed by A.V. Wallace (1951), in subtotal burns according to the "palm" rule (body surface approximately 1% or 160 cm2). The depth of the lesion was determined according to the classification of A.A. Vishnevsky et al. (1960).

Depending on the area of deep burns, all thermal burns were distributed as follows: in 3 (3.5%) pregnant women, deep burns of up to 5% of the body surface were localized, in 45 (51.13%) pregnant women, deep burns of more than 30% were localized, of which 8 (9.0%) had severe burns of more than 50% of the body surface.

Out of 42 (47.7%) prospective pregnant women, 27 (56.3%) and 15 (37.5%) victims in the retrospective group were diagnosed with DIC of varying severity. These victims suffered burns mainly as a result of attempted suicide. According to our data, simultaneous dental caries sharply worsen the prognosis of burns, especially when combined with extensive deep burns.

The localization of burn wounds was varied, with localized injuries accounting for 3.4% of observations, and all other cases were determined by the extensive extent of injuries to several anatomical areas, especially in pregnant women burned by flame (64.8%). An important moment for pregnant women is the rapid healing of burns located in the abdomen, because if surgical intervention is needed during childbirth (caesarean section), it is extremely important to have a "clean" surgical area. No significant differences were observed in the localization of burns by groups.

The severity of the condition of pregnant women with thermal injury was also assessed using the Frank index (FI). FI is expressed in traditional units, corresponding to 1 index unit for every 1% superficial burns and 3 units for 1% deep burns. In cases of burns of the upper respiratory tract, 15, 30, 45 units are added, depending on the severity of the injury, respectively. With a Frank index of up to 30 units, the prognosis is considered positive, with 31 - 60 units - relatively positive, with 61-90 units - questionable, and with more than 90 units - negative. In our observations, in 21.6% of affected pregnant women, the result index was positive and relatively positive. A questionable and negative result (IF = 61-90 units) was observed in 69 (78.4%) pregnant women.

In all pregnant women with deep burns of more than 10% of the body surface, characteristic signs and complications of burn disease developed. In 40 pregnant women, deep burns of the body surface were detected from 20% to 51% and more. Similar information is provided by D.J.Dubby, et al. (2000). Rezavand N., also author. (2012) as well.

88 pregnant women with thermal burns, upon admission to the combustiology department, complained of severe burning pain in the burn wound, burning, nausea, vomiting, dizziness, weakness, tremors, and thirst. In pregnant women of the prospective group, complaints of nausea, vomiting, dizziness, weakness, tremors, and thirst were significantly reduced compared to pregnant women of the retrospective group, based on the improved treatment method and the developed algorithm.

In our observation, when studying the influence of burn disease on pregnancy, we saw a sharp increase in the number of complications after the development of burn disease: the uncertain position of the fetus increased from 6.25% to 14.58%, preeclampsia - from 16.6% to 20.8%, polyhydramnios - from 6.25% to 8.3%. After the development of burn disease, the frequency of complications increased from 43.7% to 66.6%.

The severity and outcome of burn disease depended on the depth of the burn and the presence or absence of TOO. In 40 (83.3%) victims of the prospective group, burn shock was accompanied by severe symptoms: severe tachycardia, fluctuating blood pressure, decreased diuresis (anuria for 6-9 hours, followed by oliguria), persistent nausea and vomiting.

Pregnant women with thermal injuries gradually recovered from shock by the end of the 3rd day. Signs of acute burn toxemia (early psychosis, hyperthermia) were observed in 34 (70.8%) and septic toxemia (sepsis, pneumonia, pyelonephritis) in 27 (56.2%) pregnant women.

Thus, the management of pregnant women with burn disease is one of the most urgent tasks. In connection with the foregoing, we set ourselves the goal of improving the diagnosis and treatment of burns in pregnant women.

Considering that burn disease in most cases leads to a violation of the functional state of the fetus in pregnant women, we decided to assess the hemodynamic parameters of pregnant women with burns, as well as the functional state of the fetus, and to timely determine the uncertain state of the fetus. Doppler examination was performed on 22 pregnant women with thermal injuries. In 59% (13) of pregnant women in this group, hemodynamic disorders were detected with increased vascular resistance in various parts of the mother-placenta-fetus system, uterine and spiral arteries, umbilical arteries, and its terminal branches. In half of these pregnant women, preterm labor occurred from 32 to 36 weeks, and in the other half - at 37-39 weeks. It should be noted that these disorders were mainly detected after 36 weeks of pregnancy in 69.2% (9) of cases. In 9 (41%) observations, no hemodynamic disturbances were observed.

In pregnant women with thermal injuries in the prospective group, in 73% of cases, burns accompanied by damage to the upper respiratory tract were examined on a fibrobronchoscope (Fujifilm PS2-HP/Japan) for the purpose of early detection of thermo-inhalation damage and study of the prognosis of the disease.

One of the important issues was the assessment of the consequences of thermal injury for the mother and fetus. In our observation, 3 pregnant women with burns of the II-IIIA degree experienced full-term labor. In 5 pregnant women with burns of 10-15% of the body surface and IIIA-B degree, full-term labor was complicated by secondary delayed labor.

In 4 pregnant women who were admitted with deep burns of more than 20% of the body surface in the first trimester of pregnancy, spontaneous miscarriage was observed on the 2-3rd day after the injury, and on the 4-5th day - in 9 pregnant women. Premature births occurred in 11 pregnant women and in 3 pregnant women on days 15-20 after burns. In 3 dying pregnant women with severe deep burns of more than 40% of the body surface, cesarean section was performed at 38-39 weeks of pregnancy, and live newborns were born with an Apgar score of 6, 6, and 7.

In the prospective group, 3 (6.25%) pregnant women died, in the retrospective group - 13 (32.5%) pregnant women.

In the acute period of thermal burns during the hospitalization of victims, excessive or, conversely, insufficient infusion therapy can lead to an increase in the number of complications and an increase in maternal and perinatal mortality. In the treatment of burn shock, traditional infusion-transfusion therapy for burned pregnant women in the retrospective group was calculated according to the formula proposed by E. Evans:

V=2 ml x burn area % x body weight kg + 2000 ml 5% glucose solution.

This formula was used for burns of less than 50% of the body surface. In severe shock, crystalloids and colloids were used in a calculated volume of 2/3 of the crystalloids and 1/3 of the colloids, and in severe shock with burns of more than 50% of the body surface, crystalloids and colloids were used in a 1:1 ratio. On the second day, the infusion volume was reduced by 2 times, and on the third day, compared to the first day, by 3 times. On the first day, at least half of the daily volume calculated for the first 8 hours after the burn was administered. In the choice of infusion therapy agents, a preference was given to colloidal preparations: isogenous protein preparations (Albumin 10-20%, GEC 6% 250-500ml), as well as medium and high molecular weight colloidal synthetic plasma substitutes (Reopoliglukin 10% - 400ml and Polyglukin 33%-400ml solutions). In severe shock, the ratio between protein, colloidal, synthetic, and low-molecular-weight solutions was 1:1:1, and in DIC, the dosage of protein preparations was increased in a 2:1:1 ratio, and saluretics (Laziks-40-60 mg) were also prescribed.

During the retrospective analysis of the medical history of burned pregnant women, we were prompted to search for and develop a new method of infusion-transfusion therapy, taking into account the management of pregnant women with burns, a reduction in the number of complications, a decrease in maternal and perinatal morbidity and mortality, and the specifics of pregnancy. Based on this, we have developed:

Firstly: in the treatment of burn shock, unlike the traditional method (glucose is not currently used), depending on the gestational age, we recommend additional infusions of crystalloid solutions in the I trimester + 500 ml, in the II trimester +

1000 ml, in the III trimester + 1800 ml; Sodium chloride, Ringer's lactate, and Reosorbilakt solutions are recommended as a detoxifying agent.

If infusion therapy was started 2 hours after the burn, then half of the calculated amount of fluid is administered within 6 hours, and for this purpose, an angiokateter (16G-18G) is inserted into the 2nd vessel.

Secondly: since burns in all burned pregnant women develop a strong stress state and pose a high risk of pregnancy termination, micronized progesterone should be prescribed per.os, per.vag. or per.rec. depending on the location of the burn wound until 34 weeks of pregnancy for the purpose of preserving the fetus;

Thirdly: in cases of large-scale deep severe burns of pregnant women, at least in order to save the life of the fetus, it is necessary to perform a cesarean section on a dying pregnant woman;

Burns are an additional shock for pregnant women. In most cases, burns caused miscarriage or the onset of labor. The onset of labor or miscarriage was observed on average within 2.1±0.4 weeks after the burn. In 15% of pregnant women, miscarriage ended with spontaneous termination of pregnancy, in 39.5% with preterm labor, and in 42.5% with term labor.

Micronized progesterone ("Utrojestan," "Fetalston," "Lyutein") was prescribed to all pregnant women up to 34 weeks of gestation, depending on the location of the burn wound (for example, per.vaginum or per.rectum in dental caries).

For the prevention of uncertain fetal condition, dexamethasone 8 mg 3 times a day (total 24 mg) was prescribed from 24 to 34 weeks of pregnancy.

For the prevention of septic disease in severe and extremely severe thermal burns, antitoxic agents were used for passive immunization - antistaphylococcal, antisinuginous, and antiproteic plasma, depending on the nature of the microflora, as detected in burns or in the blood.

In the initial stages of the infectious process, plasma transfusions for the purpose of detoxification were used from 4-5 days after the thermal injury, depending on the victim's weight, at a dose of 5-7 ml/kg from 3 to 5-6 times a day.

Considering the high probability of developing septic complications in extensive severe burns, we paid special attention to antibacterial therapy that does not have a teratogenic effect on the fetus in the treatment of burned pregnant women, depending on the type of microflora obtained from the burn wound. In the treatment of pregnant women with thermal injuries, the use of II, III-generation aminoglycosides (gentamicin, amikacin), I, II, III-generation cephalosporins (cefotaxime, cefamed, ceftazyme, ceftriaxone) or their combination proved

effective. In pregnant women with severe burns, with an increase in the number of resistant strains of gram-positive and especially gram-negative microorganisms, the need arose for the use of IV generation cephalosporins (cefepim).

The high and pharmacoeconomic effectiveness of the antibiotics was shown by the use of Cefepim ("Maxipim") in pregnant women with extensive deep burns, especially in the treatment of severe septic conditions resulting from 5 polyresistant flora in combination with metronidazole.

In the complex treatment of burned pregnant women, vitamins, cardiac drugs, hepatoprotectors, anticoagulants, and callicrein inhibitors (contical 200-300 IU/per 1 kg of body weight per day, or trazylol 2500-5000 IU/per 1 kg of body weight intravenously) were also used.

The outcome of pregnancy and childbirth in the victims depended on the duration of pregnancy, the severity of the burns, premorbid background, and many other similar factors. Cesarean section was performed according to obstetric indications (scar on the uterus - 4.16%, misplacement of the fetus - 2.08% and unclear position of the fetus - 6.24%).

In our study, in 3 (6.24%) cases, a dying pregnant woman with severe burns underwent at least a cesarean section to preserve the fetus, and the lives of full-term newborns with a live fetus weight of 3050.0±175 were saved.

Assessment of the outcome of pregnancy and childbirth was carried out on the basis of assessing the condition of the newborn and the woman who gave birth. Our study showed that in 36 women, pregnancy and childbirth ended satisfactorily. A total of 5 perinatal diseases were identified, of which 3 (7.5%) were asphyxia, 1 (2.5%) was a hypo-ischemic disorder of the central nervous system, and 1 (2.5%) was an intrauterine infection.

Our studies have shown that in thermal injuries in pregnant women, the clinical course of burn disease and the processes developing in wounds were determined primarily by the nature and depth of the injury. Deep burn injury largely determines the severity and prognosis of burn disease. Radical removal of thermally damaged tissues (necrectomy) and autodermoplasty prevented the development of burn disease.

We did not see specific features in the course of the ulcerative process in pregnant women. With superficial skin burns of II degree, independent epithelialization of the wound was 7-8 days, with IIIA degree - 18-21 days. To prepare deep burns (IIIB-IV degree) for autodermoplasty, it took an average of 25-30 days after the injury.

Pain relief with intravenous administration of ketamine was carried out by changing the bandage and other active interventions. In cases of deep burns, necrotic

tissues were removed early, i.e., stage-by-stage bloodless necrectomy was performed. Surgical intervention was required in 27 (67.5%) pregnant women with deep thermal burns of the IIIB - IV degree. Due to the severe condition of burned pregnant women (pneumonia, POI), the operation was performed on average 27.5±1.0 days after the burn. Out of 27 patients, 5 (18.5%) underwent ADP stage I, 2 (7.4%) underwent stage II, and 20 (74%) underwent stage III - a total of 71 autodermoplasty (from 500 to 850 cm2), on average per patient - 2.62 times. In 1 patient, exoarticulation of the left foot was performed due to a fourth-degree burn.

Autograft detachment in an area of 20-30% of the skin surface was noted in 14.8% of cases (4 patients) with surgical interventions in the form of granulation ulcers ADP, followed by repeated ADP in an area of 100-150 cm2 with a positive result in 3 patients. Due to suppuration in 8 (13.8%) of the 58 donor wounds, repeated ADP was performed on an area from 100 to 150 cm2. In the rest, the healing of donor wounds occurred within 10-15 days.

Treatment was carried out by the combined efforts of a combustiologist and a gynecologist using ultrasound diagnostics and a controlled microclimate ("Clinitron"). Medications with a teratogenic effect were excluded from the treatment, and L-arginine was administered parenterally daily at a dose of 100 ml for the purpose of improving placental blood flow and as an antioxidant.

15 pregnant women were discharged home, 2 women with a live fetus weighing 2150-2275 g and 1 dead fetus weighing 1105 g were born on the 8th day after autodermoplasty.

In our study, POI was observed in all (48 patients-100%) pregnant women with thermal injuries. At the same time, in 45 (93.7%) - a combination of dysfunction of three or more organs and systems was revealed.

In 46 (95.8%) burned pregnant women, there were disorders of the central nervous system with POI syndrome (encephalopathy, delirium, or impaired consciousness).

Similarly, in pregnant women with burns, renal function disorders developed in 44 (91.7%) and 44 (91.7%) cases. The next most frequent was damage to the cardiovascular system, which was observed in 39 (81.3%) pregnant women, respiratory disorders - in 34 (70.8%) cases, in response to the effects of thermal damage, the pregnant woman's body manifested hypoxic and metabolic changes. Consequently, our studies have shown that the severity of thermal injury is the leading factor in the development of functional disorders (POD) by vital organs and systems in affected pregnant women (10% or more of the area of deep burns), which largely determines the outcome of treatment of the disease.

Among the pregnant women with exitus, victims of extensive skin burns with DIC prevailed (30), who were admitted to the clinic in a state of extremely severe

burn shock (FI more than 100). In most cases, death occurred early, i.e., during the period of burn shock and toxemia. A total of 16 deceased pregnant women had relatively unsatisfactory and questionable results. The causes of death were mainly multiple organ failure of more than 2-3 organ systems.

Due to the use of improved methods of diagnosis and treatment in pregnant women with thermal injuries in the prospective group, maternal mortality decreased from 13 (32.5%) to 3 (6.25%), i.e., by 4 times.

After thermal burns, no significant changes were detected in the female reproductive system in the long term. At the time of the burns, 39 pregnant women were married, and six pregnant women were unmarried. Four patients (18-20 years old) married a year after superficial burn injury of II-IIIAB degree. Three patients with severe thermal injuries (24.27 and 30 years old) divorced for social reasons not related to burns. According to the survey results, all women have a sexual life, with the exception of one patient with a broad post-thermal scar and combined contracture (group 2 disabled person): 40% flame burns of the face, neck, back, abdomen, limbs of II-IIIAB degree. In five of the victims, the pregnancy proceeded without complications, followed by full-term delivery. They use various types of contraception: IUDs, COCs, barrier, and surgical.

CONCLUSION

Based on the results of the dissertation work for the degree of Doctor of Philosophy (PhD) in Medical Sciences on the topic **"Optimization of management of pregnant women with burns,"** the following conclusions were formulated.

The structure of thermal injury in pregnant women, depending on the burning factor, was: flame - 64.8%; hot water - 20.5%; gas cylinder explosion - 14.7%. In terms of the clinical course of burn disease in pregnant women: burn shock was observed in 29 (56.3%) victims, acute burn toxemia - in 12 (25%) and septicotoxemia (sepsis, pneumonia, pyelonephritis) - in 9 (18.7%).

2. In burned pregnant women, the course and outcome of pregnancy mainly depend on the area and depth of thermal injury: burns of up to 10% of the body surface do not negatively affect the course of pregnancy. In cases of deep burns of more than 10% IIIB-IV degree and especially with combined dental caries, a sharp increase in some complications observed during pregnancy after thermal trauma was revealed: the uncertain position of the fetus increased from 6.25% to 14.5%, preeclampsia - from 16.6% to 20.8%, polyhydramnios - from 6.2% to 8.3%. After the development of burn disease, the frequency of complications increased from 43.75% to 66.6%.

3. Clinical and laboratory indicators in pregnant women with burn disease: hematocrit from 46.5±0.35 to 55.2±1.2% ($p<0.05$); D-dimer increased from 1.02±0.25 to 3.71±0.94 ($p<0.05$), which indicates the severity of hypovolemia. According to the results of fetal Doppler ultrasonography, as a result of hypovolemia, the following hemodynamic disorders were observed in the mother-placenta-fetus system: aortic RI (0.68±0.05 $p<0.001$), SDM (4.03±0.16 $p<0.001$), PI (0.75±0.06 $p<0.01$).

4. The use of an improved treatment method in pregnant women with burn disease reduced maternal mortality from 13 (32.5%) to 3 (6.25%), i.e., by 4 times.

5. The results of the development of an algorithm for the management of pregnancy and childbirth in pregnant women with burn disease were as follows: in 15% of cases, the pregnancy ended in spontaneous miscarriage, in 39.5% - in preterm labor, and in 42.5% - in term labor. Cesarean section was performed on 3 (6.25%) deceased pregnant women with extremely severe burns, and live births were obtained.

PRACTICAL GUIDELINES

1. Obstetric and gynecological examination and pregnancy tests for pregnant women with thermal injuries are mandatory for all women with burns of reproductive age.

2. In order to assess the condition of the fetus in burned pregnant women and determine the tactics of management, it is necessary to conduct an ultrasound examination of the fetus and fetoplacental system, Dopplerography, if necessary, preserve the pregnancy, improve maternal-fetoplacental blood circulation, and decide on the prevention of RDS or termination of pregnancy.

3. To the infusion-transfusion therapy, calculated for the correction of blood circulation in pregnant women with burn shock, we recommend an additional infusion of 500 ml in the 1st trimester, 1000 ml in the 2nd trimester, 1800 ml in the 3rd trimester, depending on the gestational age.

4. All pregnant women with thermal injuries are recommended to receive micronized progesterone (utrojestan, fetalston) 200 mg per os, per vag. or per rectum, depending on the location of the burn wound, for the purpose of preserving the pregnancy.

5. In pregnant women with severe deep extensive burns on the verge of death, cesarean section should be performed to save the life of the fetus.

LIST OF LITERATURE

1. Abakumov M.M., Stolyar A.N. The Significance of High Abdominal Pressure Syndrome in Surgical Practice // Surgery - 2003. No12. p. 66-72.

2. Agapov I.L. Improvement of Local Treatment of Victims with Surface Burns in Conditions of a Circular Burn Center. //Autoref.diss.c.m.n., Saint Petersburg.2004.616-001.17

3. Alekseev A.A., Krutikov M.G., Yakovlev V.P. Burning infection. Etiology, pathogenesis, diagnosis, prevention and treatment. Moscow. "University Book," 2010.-414 p.

4. Alekseev A.A., Tyurnikov Yu.I. Main statistical indicators of the operation of burning hospitals in the Russian Federation in 2009. In the collection of scientific works of the III Congress of Combustiologists of Russia. November 15-18, 2010. Moscow, 2010. pp. 4-6.

5.Alekseev A.A., Krutikov M.G., Shlik I.V. et al. Diagnosis and treatment of burn shock: clinical recommendations. All-Russian Public Organization "Union of Combusticians "World Without Burns."Moscow, 2014 - 17 p.

6. Alekseev A.A., Bobrovnikov A.E. et al. Local conservative treatment at the stages of providing assistance to burn victims: clinical recommendations. All-Russian Public Organization "Association of Combusticians "World Without Burns." Moscow, 2014 - 22 p.

7. Alekseev A.A., Bobrovnikov A.E. et al. Surgical treatment of burn victims: clinical recommendations. All-Russian Public Organization "Association of Combusticians "World Without Burns." Moscow, 2015. - 12 p.

8. Alekseev A.A., Bobrovnikov A.E., Malyutina N.B. et al. Development of a technology for applying silcofix bandages to burn victims. Current issues of treatment of thermal trauma. Materials of the International Conference. Yakutsk.2015: pp.19-21.

9. Alekseev A.A., Bobrovnikov A.E. "Erosive-ulcerative lesions of the gastrointestinal tract and bleeding from them in burn victims." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019.p. 3-5.

10. Altiev B.K., Jabbarov Zh.I. Diagnosis and treatment of patients with intraventricular hypertension syndrome in urgent surgery. // Surgery of Uzbekistan, 2018, 3, p. 5-6.

11. Alimov R.A., Riskiyev B.D., Rasulov B.Kh., Local treatment of burn wounds. Collection of scientific works of the I Congress of Combusticians of Russia "World Without Burns," Moscow (October 17-21),2005.-p.118-119.

12.Arev T.Ya. Thermal Damage. Leningrad: Medicine, 1966. -704p.

13. Akhmedov A.A., Karabaev Kh.K., Arziyeva G.B. et al. Burn sepsis. // "Medicine and Quality of Life" Moscow.2012.,No3,p.20-21.

14. Akhmedov A.A., Karabaev Kh.K., Arziyeva G.B., et al. Ways to prevent burn sepsis. // "Medicine and Quality of Life" Moscow.2012., No3, p.21.

15. Akhmedov R.F., Kh.K. Karabaev, K.R. Tagayev et al. "Effectiveness of hepatoprotective therapy in patients with burn sepsis." Inter-Russian Conference. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 13.

16. Bagnenko S.F., Krylov K.M., Shlik I.V., Fire Center of the I.I. Otanemosis 65 years old. Some Results, Problems, Prospects // Mat, Conf. "Modern Aspects of Thermal Injury Treatment" St. Petersburg, 2011. pp. 16-17.

17. Baindurashvili, A.T., Filippova O.V., Afonichev A.K. et al. "Related results of plastic surgery of granulating wounds of distal extremities with mesh skin autografts." Mat. All-Russian Conference with International Participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 14.

18. Beloborodova N.V., Popov D.A. Search for an "ideal" biomarker of bacterial infections. Clinical anesthesiology and resuscitation. - 2006. - Vol. 3. - No3. - P. 30-38.

19. Byktashev V.S., Salistiy P.V., Saidgalin G.Z. "Comparative effectiveness of donor wound management." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 19.

20. Bregadze A.A., Lebed A.A., Lebedev Yu.P. et al. Gastrointestinal bleeding in victims with thermal trauma. // Collection of scientific works III Congress of Combustiologists of Russia. Moscow, 2010, pp. 68-69.

21. Brigin P.A., Shabanov A.K., Zhirkova E.A. et al. "Features of Providing Medical Care for Inhalation Trauma at the Pre-Hospital Stage." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 25.

22. Wagner D.O., Zinoviev E.V., Soloshenko V.V. et al. "Divane trauma" in combustiology // Mat. The 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. - St. Petersburg, May 30-31, 2019. - pp. 32-33.

23. Wagner D.O., Yurina B.H. Abdominal compartment. Syndrome in severely ill individuals: causes of development and treatment methods. // At the Congress of Combustiologists. Russia. October 31 - November 3, 2017. Collection of scientific works. Moscow, 2017, p. 40.

24. Vazina I.R. Sepsis of animals and questions of its pathogenesis // Vazina I.R., Vereshagina E.S., Pilaeva S.I., Gordinskaya N.A., Bugrov S.N. // Congress "Combustiology at the Turn of the Century":Tez.doc.-M.,2000.-P.43-44.

25. Gelfand B.P. Anesthesiology and Intensive Therapy: Practical Guide. - Тошкент, 2016.

26. Grinev M.V., Gromov M.I., Komrakov V.E. Surgical Sepsis.

Saint Petersburg-Moscow, 2011. - 315 p.

27. Gritsan A.I., Yaroshetsky A.I. et al. Diagnosis and intensive therapy of acute respiratory distress syndrome. Clinical Recommendations of the All-Russian Public Organization "Federation of Anesthesiologists and Reanimatologists" Moscow, 2015-38 p.

28. Guzenko B.V., Spesarenko S.V., Serdnok O.V. et al. Early diagnosis of bacterial sepsis in patients with severe acne // Current issues of combustiology, plastic surgery and wound treatment. Donetsk, 2011, p. 46-47.

29. Demenko V.V., Cheplyayev A.A., Shabanov T.V. "Problems of Medical Evacuation of Patients with Burns" St. Petersburg: materials of the 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. St. Petersburg, May 30-31, 2019. 49.

30. Dmitriev I.D. Suicide as a Social Problem. - Тошкент, 2013. 58 p.

31. Dmitriev D.G. Rehabilitation of patients with burns of the upper extremities at the stage of skin restoration. J. Name of N.I. Pirogov. 2016. pp. 35-58.

32. Dmitriyenko O.D. Burns in Pregnant Women // Obstetrics and Gynecology. - 2011. - No10. - pp.24-27.

33. Yermolinskiy I.N. Influence of thermal trauma on reproductive, menstrual function and pregnancy (clinical and experimental study); Author's abstract of the dissertation. - M., 1998. 18 p.

34. Zhilinsky E.V. Analysis of the use of presepsin in the diagnosis of sepsis in severe burns // Modern aspects of the treatment of thermal trauma. St. Petersburg, 2016. pp. 38-39.

35. Zhilinsky E.V. Methods for predicting sepsis in burn disease // "Thermal lesions and their consequences." V Congress of Combustiologists of Russia - Moscow, 2017, pp. 74-75.

36. Zhuchkova N.A., Altarekva A.V. Yakimova A.V. "Vobenzim" in the complex treatment of burn disease. International Congress "Combustiology at the Turn of the Century." Moscow (October 9-12, 2017), pp.73-74.

37. Isayan L.A. Intensive therapy of burn disease with individual selection of antioxidants against the background of neuropeptide bioregulation. Abstract of the dissertation of the Candidate of Medical Sciences, Moscow, 2010.

38. Karabaev Kh.K., Kamalov S.K., Khaydarov G.A. Course of burn disease in pregnant women // Medical Journal of Uzbekistan. - 2016. -No4. -p.42-43.

39. Karabaev B.K., Fayazov A.D., Yuldashev J.S. et al. Special course and treatment of burn sepsis in elderly and senile people // Modern aspects of treatment of thermal trauma. St. Petersburg, 2016. P.19.

40.Karimov Z.D., Jabborov U.U., Abdikulov B.S., Khusanhodzhaeva M.T. Pregnancy Traumas: Modern Aspects of the Problem. (Review of Literature). Emergency medical assistance. 2013. No. 1, pp. 33-37.

41. Katayev V.A., Markov I.A. Prospects for the use of new wound-healing medical devices for the treatment of wounds and burns. Collection of scientific works of the 4th Congress of Combusticians of Russia. M.2013:102-104.

42. Klimov A.G. Artificial maintenance of gas exchange in victims of thermal trauma in the period of burn shock. Abstract of doctoral dissertation. Med. sciences - SPb., 2018-38p.

43.Kozlova M.N., Zemskov V.M., Alekseev A.A. "Diagnosis and correction of immune disorders in burn disease." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 54.

44. Kovalev V.O., Berdnikov I.I. Pregnant Patient with Severe Combined and Combined Thermal Trauma: Clinical Case. Modern aspects of thermal trauma treatment. St. Petersburg, 2016., pp. 51-52.

45. Krylov K.M., Krylov P.K. Emergency Medical Care for Thermal Trauma. // Mat. 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia //. Saint Petersburg, May 30-31, 2019. - p. 71.

46. Krylov K.M., Smirnov S.V., Shlik I.V. et al. "Standardization of the stage of emergency medical care in combustiology." Mat. conf. "Thermal Damage and its Consequences." Yalta - 2016. p. 105-106.

48.Kunafin M.S., Irzhanov Zh.A., Khunafin S.N., et al., Nuritdinov I.N., Ishmukhametov P.A. Current issues of diagnosis and treatment of thermo-inhalation trauma. Mat. The 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. Saint Petersburg, May 30-31, 2019. - p. 75.

49. Kulakov V.I., Frolova O.G. Maternal and Newborn Health. // J.Akusher. and Gynecology-1994. No1.-p.3-6.

50. Kulakov V.I., Proshina I.V. Emergency Resolution. -M., Medicine, 1994.-272 p.

51. Kulabukhov V.V., Kudryavtsev A.N., Chizhov A.G. et al. The role of biomarkers in the diagnosis of complications of burn disease // "Thermal lesions and their consequences." V Congress of Combustiologists of Russia - Moscow, 2017, p. 104.

52. Loych I.B., Koltovich A.P., Ilin V.A., Yudenich A.A., Yekamasova E.A., Barkelev M.A., Khodov A.N. et al. Main Military Hospital of the Ministry of Internal Affairs of the Russian Federation (Balashikha city) Surgical preparation of deep burns for autodermoplasty. Bulletin of the National Medical and Surgical Center named after N.I. Pirogov 2010.

53. Lutovinov L.V. Course of Pregnancy in Deep Burns. // Collection of scientific works of the Higher Attestation Commission, vol. 183.-L.,1967.-p.68-69.

54. Madazimov M.M., Madazimov K.M., Teshaboev M.G. "Tactics of surgical treatment of patients with consequences of burns of the cranial vault." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019.p 4.

55. Matvinko A.V. Mechanisms of formation of a systemic response in convicts // IV Congress of Combustiologists of Russia Moscow 2013, pp. 71-73.

56. Movchan K.N., Chichkov O.V., Levkov A.L. et al. Experience in the treatment of severe thermal trauma in a pregnant woman with a favorable outcome for mother and child // Journal of Obstetrics and Women's Diseases. 2005.-No1.-P.149-150.

57. Naumkina V.V. Experience in the treatment of burn wounds with chitopran bandages. Materials of the All-Russian Scientific and Practical Conference with International Participation. Yalta 2016. pp.137-138.

58. Nigmatullina O.R., Malgojdarova B.S., Absadikov N.A. Burns in Pregnant Women // Mejd. Congress "Combustology at the Turn of the Century." Moscow 2010. p.81

59.Nuriddinov I.I., Gaiptsev V.A., Tropinina Yu.G. Experience in early diagnosis of septic complications under conditions of ORIT of the burn department // IV Congress of Combustiologists of Russia Moscow 2013, pp. 74-75.

60. Orlova O.V., Krylov P.K., Golovanov A.A. Analysis of the provision of medical care at the prehospital stage to victims with shockogenic thermal trauma. Mat. The 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. Saint Petersburg. 2019. p. 99.

61. Ostrovsky V.N., Balyakina N.B. Local conservative treatments of burn wounds using biomaterials developed by cancer scientists. Materials of the scientific and practical conference with international participation. SPb 2016: p.74-75.

62. Ostrovsky N.V. Stages of the Formation of the System for Providing Specialized Assistance to Burn Victims in the Saratov Region. Mat. The 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. St. Petersburg, May 30-31, 2019. pp. 99-100.

63.Ostroglazov V.G., Smirnov P.V., Gerish A.A. Clinical and statistical study of patients hospitalized in connection with suicidal attempts. // Moscow Medical Journal, 1998, p. 18-20. 43. 52).

64. Paramonov B.A., Porembsky Ya.O., Yablonskiy V.T. Furnaces. Guide for Doctors. St. Petersburg, Spes Lit, p. 20-170.

65. Potiyevskaya V.I., Gridchik I.E.; Gritsan A.I., et al. Sedation of patients in intensive care units. Clinical recommendations of the All-Russian Public Organization "Federation of Anesthesiologists and Reanimatologists." Moscow, 2015. - 12 p.

66.Reva I.V., Odinsova I.A., Usov V.V. Optimization of surgical treatment tactics for patients with deep thermal burns. FGBVOU VO "Military Medical Academy named after S.M. Kirov" MO RF. Herald of Surgery.2017. p.50.

67. Ryabkov M.G., Arefev I.Yu., Beschastnov V.V. et al. "Predictors of a fatal outcome in long-term inpatient treatment of burn injuries." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019.p. 19.

68. Struzhina E., Antonov S.I., Mondri R. et al. Abdominal hypertension syndrome as complicated by infusion therapy of burn shock. The concept of

prevention and treatment. // IV Congress of Combustiologists of Russia. October 14-15, 2013. Collection of scientific works. Moscow, 2013, p. 80.

69. Tolstov A.V. Improvement of methods for the prevention and treatment of local burn infection. Collection of scientific works of the 3rd Congress of Combusticians of Russia. M., 2010. pp. 185-187.

70.Tulyaganov D.B., Fayazov A.D., Ubaydullaeva V.U. et al. "The state of the vessels of the microcirculatory bed in electrical trauma." Mat. All-Russian Conference with International Participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 34

71. Tuxtamishov V.S., Kuchumov A.G., Nyashin Yu.N., et al. Human intraperitoneal pressure. Russian Journal of Biomechanics. 2013, Vol. 17, No. 1 (59): pp. 22-31.

72. Tyurnikov Yu.I., Bush A.A., Sukhov T.Kh. "On the Rational Planning of Systemic Antimicrobial Therapy in the Acute Period of Burn Trauma." Mat. All-Russian Conference with international participation. "Current Issues of

73. Ubaydullaeva V.U., Fayazov A.D., Kamilov U.R. "Morphological assessment of the course of the wound process in convicts." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 37.

74. Ushakova T.A. /Adaptive reactions in severely burned patients under intensive therapy conditions.// T.A. Ushakova //Dissertation of Doctor of Medical Sciences.M.-2008.-268 p.

75. Fayazov A.D., Kamilov U.R., Tulyaganov D.B., Abdullaev U.Kh. Pathogenetic foundations of anti-shock therapy for severe burns. Mat. The 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. Saint Petersburg, May 30-31, 2019. - p. 144.

76. Fayazov A.D., Ajiniyazov R.S., Tulyaganov D.B. Ways to improve the results of local treatment of burn wounds. Emergency Medical Services. 2015:4; p.37-39.

77. Fedotov S.A., Gumenyuk S.A., Teryaev V.G., et al., Zakirov R.R. Provision of medical care to burn victims at the pre-hospital and early inpatient stages. Mat. The 18th All-Russian Congress dedicated to the 120th anniversary of emergency medical care in Russia. Saint Petersburg, May 30-31, 2019. - p. 148.

78. Khajibayev A.M., Fayazov A.D., Urazmetova M.D. et al. Clinical and immunological effectiveness of the use of cultured allofibroblasts in the treatment of diseases with combined lesions. Vesti of Emergency Medicine.

79. Khakimov E.A., Davronov S.F. "Analysis of the Lethality of Heavily Burned." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019.p.145.

80.Churilov A.V., Kushnir S.V., Dzhelomanova S.A. et al. Tactics of pregnancy management against the background of thermal lesions of the skin // Collection of scientific works I Congress of Combustiologists of Russia. Moscow, 2005. pp. 110-111.

81. Churilov A.V., Kushnir S.V., Fistal N.N. et al. Management tactics for pregnant women with thermal lesions. // Emergency Medical Care, Russian Scientific-Practical Journal.2006.Vol.7.-No3-p.100-101.

82. Shayn M. Healthy Meaning in Emergency Abdominal Surgery. M.: "GEOTAR MED," 2013, p. 217.

83. Shlik I.V./Diagnostics of respiratory tract damage in combined thermal trauma and forecasting its outcome // I.V.Shlik // Abstract of the dissertation of Cand. of Medical Sciences.-Saint Petersburg, 2010.-20 p.

84. Yunusov O.T., Khakimov E.A., Tagayev K.R. et al. "Effectiveness of the use of the hemostatic agent "HEPROTSEL" in the treatment of patients with deep burns." Mat. All-Russian Conference with international participation. "Current Issues of Combustiology." Sochi 1-5 October 2019. p. 58.

85. Yunusova Yu.R., Shapovalov S.G., Sukhoparova E.P. "Epidemiological characteristics and special victims in fires in the metropolis" // Collection of scientific works "Thermal Damage and its Consequences." Moscow, 2017. p. 211-212.

86. Aboutanos S.Z., Aboutanos M.B., Dompkowski D. Predictors of fetal outcome in pregnant trauma parents: A. five-year institutional review // Am.Surg.2007; 73: p. 824-827.

87.Advanced Life Support Group. Safe Transfer and Retrieval (STaR) Coars. Manchester, UK, ALSG Centre for Training & Development.

88.American College of Surgeons. Committee on trauma (2004) ATLS: advanced trauma life support for doctors. Chicago: American College of Surgeons. 2004. p. 243-61, 275-81.

89.Jain V, Chari R, Maslovitz S, Farine D. Guidelines for the management of a pregnant trauma patient. Obstet Gynaecol Can. 2015; 37 (6):553-71.

90. Battaloglu E, McDonnell D, Chu J, Lecky F, Porter K. Epidemiology and outcomes of pregnancy and obstetric complications in trauma in the United Kingdom. Injury. 2016;47 (1): 184-7.

91. Burlingame J, Horiuchi B, Ohana P, Onaka A, Sauvage LM. The contribution of heart disease to pregnancy-related mortality according to the pregnancy mortality surveillance system. J Perinatol. 2012;32:163-9.

92.Correia-Sá I, Marques M, Horta R, Costa-Ferreira A, Rodrigues AG, Silva A, Egipto P (2021) Experience in Management of Burn Injury During Pregnancy in a Burn Unit. J Burn Care Res. 42 (2): 232-235.

93. Fields, J.M., Catallo, K., Au, A.K., et al. Resuscitation of the pregnant patient: what is the effect of patient positioning on the diameter of the inferior vena cava? Resuscitation. 2013; 84:304-8.

94. Chang J., Berg C.J., Saltzman L.E., Hern-don J. Homicide: A leading cause of injury deaths among pregnant and postpartum women in the United States 1991-1999// Am. J. Public Health. 95: 471-477.

95. Cheach S.H., Sivanesaratnam V. Burns in pregnancy-maternal and fetal prognosis //-Aust-N-Z-J-Obstet-Gynaecol-2009, May,-29 (2),-p.143-145.

96. Chen W.G. DNArelease and uptake associated with the development of pleomorphic cells in mammalian skin autotransplants // West Indian Med.J.2011.Vol.60. Pp. 257-262.

97. Daryani R., La Londe C., Zhu D., Weidner M., Knox J., Demling R.H. Effect of endotoxin and burn injury on Lung and liver lipid peroxidation and catalase activity //Journal of Trauma, Baltimore MD.-2016/-Vol.30, №11.

98. Debats I.B., Koeneman M.M., Booi D.I.et al. Intravenous arginine and human skin graft donor site healing arandomized controlled trial// Burns.2016.Vol.37.P.420-426.

99. Driscoll P., Wardrope J. ATLS:Past, present, and future // Emerg. Med.J. 2015; 22: 2-3.

100. El Kady D.,Gilbert W.M., Xing G., Smith L.H. Maternal and neonatal outcomes of assaults during pregnancy // Obstet. Gynecol. 2015; 105: 357-363.

101. El Kady D., Gilbert W.M., Xing G., Smith L.H. Association of maternal fractures with adverse perinatal outcomes // Am. J. Obstet. Gynecol.2016; 195: 711-716.

102. European Trauma Cours. Antwerp, European Resuscitation Councill,2018.

103. Gaffar UB, Akhtar N, Faruqui TH. Burns during pregnancy. A socio-cultural disease. J Indian Acad Forensic Med 2007; 32(1):31–33.

104. Gierek M. Kawecki M.et. al. Use of human amniotic membrane in treatment of burns.J.Orthopaed Trauma Surg Related Res (Poland).2012.12.70-75.

105. Ghotbi S, Beheshti M. Burn during pregnancy, a five year survey to assess maternal and fetal mortality. Shiraz E Med J. 2006;7(4):1–5.

106. Grady K., Howell C, Cox C.Managing Obstetric Emergencies and Trauma // London, Royal College of Obstetricians and Gynaecologists Press, 2017.

107. Guo S.S., Greenspoon I.S., Kahn A.M.A management of burn injuries during pregnancy.// Burns.-2019.-Vol.27.№ 4.-P.-394-397.

108. Haycock J.W., Ralston D.R., Morris B., Freedlander E., MacNeil S.Oxidative damage to protein and alterations to antioxidant levels in human cutaneous thermal injury // Burns,Oxford.-2018.-Vol.23, №7/8.-P.535-540.

109. Hayek S, Ibrahim A, Abu Sittah G, Atiyeh B. Burn resuscitation: is it straightforward or a challenge? Ann Burns Fire Disasters. 2011;24:17–21.

110. Hayes B., Ryan S., Stephenson J.B., King M.D. Cerebral palsy after maternal trauma in pregnancy // Dev. Med. Child.Neurol. 2017; 49: 700-706.

111. Helling T.S. Wilson J., Augustosky K. the utility of focused abdominal ultrasound in blunt abdominal trauma. A. reappraisa l/AM. J. Surg.2017; 194: 728-732.

112. Howell P. trauma. In Chestnut D.H.(ed). Obstetric Anesthesia: Principles and practice. Fourth Edition, Mosby. 2009; 1149-1163.

113. Hussein W, Lafayette RA. Renal function in normal and disordered pregnancy. Curr Opin Nephrol Hypertens. 2014;23:46–53.

114. Huls CK, Detlefs C (2018) Trauma in pregnancy. Semin Perinatol 42(1):13-20.

115. Karimi H, Momeni M, Momeni M, Rahbar H. Burn injuries during pregnancy in Iran. Int J Gynaecol Obstet. 2009;104:132–4.

116. Katz D, Beilin Y. Disorders of coagulation in pregnancy. Br J Anaesth. 2015;115(Suppl_2):ii75–88.

117. Klinich K.D.., Flannagan C.A., Rupp J.D. Fetal outcome in motor vehicle crashes: Effects of crash characteristics and maternal restraint // Am. J. Obstet/ Gynecol.2008;198:450, el-9.

118. Lewis G., editor. The Confidential Enquir into Maternal and Child Health (CEMACH): Saving Mother's Lives: Reviewing Maternal Deaths to MakeMotherhood Safer – 2013-2015. The Seventh Report Confdential Enquiry into Maternal Deaths in the United Kingdom. London, CEMACH, 2017.

119. Masoodi Z, Ahmed I, Khurram F, et al. Pregnancy in burns; maternal and fetal outcome. Indian J Burns. 2012;20:36–41.

120. Maghsoudi H, Samnia R, Garadaghi A, Kianvar H. Burns in pregnancy. Burns. 2006;32(2):246–50.

121. McCoUough C.H., Schueler B.A., Atwell T.D. Radiation exposure and pregnancy: When chould we be concerned? // Radiographics 2017; 27: 909-918.

122. Metz T.D., Abbott J.T. Uterine trauma in pregnancy after motor vehicle crashes with airbag deployment: A 30-case series //J.Traume.2006; 61: 658-661.

123. Mendez-Figueroa H, Dahlke JD, Vrees RA, Rouse D. Trauma in pregnancy: an updated systematic review. Am J Obstet Gynecol. 2013;209(1):1–10.

124. Mirza FG, Devine PC, Gaddipati S. Trauma in pregnancy: a systematic approach. Am J Perinatol. 2010;27(7):579–86.

125. Mohamadi A.A., Sabet B, Riazi H.et al.Amniotic membrane Dressing:an Excellent Method for Outpatient Management of Burn Wounds.IJMS.2009; (1):61.

126. Mokube JA, Verla VS, Mbome VN. Burns in pregnancy: a case report from Buea Regional Hospital, Cameroon. Pan Afr Med J. 2009;3(21):245–52.

127. Naoum J.J., Roehl K.R., Wolf S.R.et al.The use of homografis to topical antimicrobial therapy in the treatment of second-degree burns of more than 40% total body surface area.Burns,2014; 30; 548-551.

128. Neilson J. Fetal electrocardiogram (EEG)for fetal monitoring during labour. Cochrane Database Syst. Rev.2006;(3):CD000116.

129. Nolan J.P. Advanced trauma life support in the United Kingdom: Time to move on // Emerg.Med.J.2005; 22: 3-4.

130. Ormsby E.L., Geng J., McGahan J.P., Richards J.R. Pelvis free fluid: Clinical importans for reproductive age women with blunt abdominal trauma // Ultrasound Obstet.Gynecol. 2005; 26: 271-278.

131. Parikh P, et al. Burns during pregnancy: implications for maternal-perinatal providers and guidelines for practice. Obstet Gynecol Surv. 2015;70(10):633–43.

132. Patteson S.K.,Snider C.C., Meyer D.C. The consequences of high-risk behaviors: Trauma during pregnancy // J.Trauma.2007; 62: 1015-1025.

133. Petrone P, Jiménez-Morillas P, Axelrad A, Marini CP. Traumatic injuries to the pregnant patient: a critical literature review. Eur J Trauma Emerg Surg. 2019;45(3):383–92.

134.Purcell LN, Banda W, Williams B et al (2020) The effect of surgical intervention on pediatric burn injury survival in a resource-poor setting. J Surg Res 253:86–91

135. Pijpe A., Dijkerman M.L., Walters-Breederveld M.L.et al. Burns during Pregnancy A. Systematik Review and a Proposal A.Gnideline|| Eur.j.Burn Care, 2020,1,P.11-12.

136. Rezavand N, Seyedzadeh A. Maternal and Foetal Outcome of Burns During Pregnancy in Kermanshah, Iran. Ann Burns Fire Disasters. 2006;19(4):174–176.

137. Rezavand N, Seyedzadeh A, Soleymani A. Evaluation of maternal and foetal outcomes in pregnant women hospitalized in Kermanshah Hospitals, Iran, owing to burn injury, 2008. Ann Burns Fire Disasters. 2012;25:196–9.

138. Schiff MA, Holt VL, Daling JR. Maternal and infant outcomes after injury during pregnancy in Washington State from 1989 to 1997. J Trauma. 2002;53(5):939–45.

139. Shah KH, Simons RK, Holbrook T, et al. Trauma in pregnancy: maternal and fetal outcomes. J Trauma. 1998;45(1):83–6.

140. Shi Y, Zhang X, Huang B, Wang W, Severe Y (2015) Burn injury in late pregnancy: a case report and literature review. Burns & Trauma 3: s41038-015-0002-z.

141. Chibber R, Al-Harmi J, Fouda M, El-Saleh E. Motor–vehicle injury in pregnancy and subsequent feto-maternal outcomes: of grave concern. J Matern Neonatal Med. 2015;28(4):399–402.

142. Sokolow VA, Abashin VG, Admakin AL, Petrachkov SA, Stepanenko AA (2016) Burn injuries in pregnant women: prevalence, structure, outcomes. Voen Med Zh 7:38-43

143. Sanchez R.2002 Choc initial dub rule.Physiopatologie: principles therapeutiques // Pathologie biologie (Paris).-2012.-vol.50-№ 2.-p.82-92.

144. Stevens T.A., Carroll M.A. Promecene P.A., Utility of acute physiology, age, and chronic health evaluation (APACHE III) score in maternal admissions to the intensive care unit // Am. Obstet.Cynecol. 2006;194: e.13-15.

145. Spahn D.R., Cerny V., Coats T.J.Management of bleeding following major trauma: A.European guideline.Crit. Care 2007; 11: R17.

146. Sperry J.L., Casey B.M., Mclntire D.D. Long-term fetal outcomes in pregnant trauma patients // Am.J.surg. 2006; 192: 715-721.

147. Subrahmanyam M. Burns during pregnancy: effect on maternal and foetal outcome. Ann Burns Fire Disasters. 2006;9(4):115–9.

ABBREVIATION LIST

ADP -autodermoplasty

AQH - circulating blood volume

APH - circulating plasma volume

BA - uterine artery

ITT - infusion-transfusion therapy

CA - umbilical artery

CACD - umbilical artery thermuminal branches

CT - umbilical vessel

KK -burns disease

QADH - minute blood volume

MVP - central venous pressure

PPF - pre-loading index

POE - polyorgan deficiency

PI - pulsation index

PGE II -prostaglandin E

RDS -respiratory distress syndrome

RI - Resistance Index

PCO2 - partial pressure of carbon dioxide in capillary blood

RSCEMC - Samarkand Branch of the Republican Scientific Center for Emergency Medical Care

CO -carbon dioxide

SpA -spiral arteries

Sdq -systolic-diastolic resistance

ART - artificial lung ventilation

Dental thermo-inhalation injury

TPI - pulsation index of a vessel

TQO% - % of reverse blood flow

TBD -tracheobronchial tree

T.Yu. -body surface area (burns %)

Systemic inflammatory response syndrome (**SIRRS)**

FBS -fibrobronchoscopy

FOP - Active Surgical Tactics

FI -Frank Index

HRV - cardiac output per minute

NO-hundred rule

ACT - acute burn toxemia

right uterine artery

LEA - left uterine artery

VO2 - Oxygen Consumption (ml/min/m2)

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