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DIAGNOSTIC AND TREATMENT APPROACHES OF ACUTE ADHESION INTESTINAL OBSTRUCTION IN PREGNANT WOMEN AND WOMEN IN LABOR IN THE CONDITIONS OF FULL-SCALE WAR IN UKRAINE

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Diagnostic and treatment approaches of acute adhesion intestinal obstruction in pregnant women and women in labor in the conditions of full-scale war in Ukraine. There are changes in the etiopathogenetic mechanisms and clinical features of the course of acute adhesion intestinal obstruction in pregnant women and women in labor as a result of the martial law. 21 pregnant and parturient women with a diagnosis of acute adhesion intestinal obstruction received treatment. An algorithm of treatment and diagnostic approaches to acute adhesion intestinal obstruction in pregnant women and women in labor in modern conditions of full-scale war in Ukraine and negative psycho-emotional impact has been developed. All patients had surgical interventions on the organs of the abdominal cavity in the anamnesis. The psychoemotional state of pregnant women and women in labor was low with acute adhesion intestinal obstruction. The lack of effect of conservative therapy within 2–3 hours was an indication for surgery. Diagnostic and treatment tactics for acute adhesion intestinal obstruction in pregnant women and women giving birth during the martial law in Ukraine should be fast and accurate with the use of additional imaging technologies, standardized depending on the timing, severity of the disease, taking into account the psycho-emotional state of the patients, and should be carried out in compliance with the proposed treatment- diagnostic algorithm.

Key words: acute adhesion intestinal obstruction, pregnant women, women in labor, diagnostic and treatment approaches.

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ДІАГНОСТИЧНІ ТА ЛІКУВАЛЬНІ ПІДХОДИ ДО ГОСТРОЇ СПАЙКОВОЇ КИШКОВОЇ НЕПРОХІДНОСТІ У ВАГІТНИХ ЖІНОК ТА ПОРОДІЛЬ В УМОВАХ ПОВНОМАСШТАБНОЇ ВІЙНИ В УКРАЇНІ

Гостра спайкова кишкова непрохідність у вагітних та породіль в умовах повномасштабної війни в Україні: діагностичні та лікувальні підходи Спостерігаються зміни в етіопатогенетичних механізмах та клінічних особливостях перебігу гострої спайкової кишкової непрохідності у вагітних та породіль внаслідок запровадження воєнного стану. Лікування отримала 21 вагітна та породіль з діагнозом гострої спайкової кишкової непрохідності. Розроблено алгоритм лікування та діагностичних підходів до гострої спайкової кишкової непрохідності у вагітних та породіль в сучасних умовах повномасштабної війни в Україні та негативного психоемоційного впливу. Усім пацієнткам в анамнезі проводилися хірургічні втручання на органах черевної порожнини. Психоемоційний стан вагітних та породіль був низьким при гострій спайковій кишковій непрохідності. Відсутність ефекту від консервативної терапії протягом 2–3 годин була показанням до хірургічного втручання. Діагностична та лікувальна тактика гострої спайкової кишкової непрохідності у вагітних та породіль під час воєнного стану в Україні повинна бути швидкою та точною з використанням додаткових технологій візуалізації, стандартизованою залежно від термінів, тяжкості захворювання, з урахуванням психоемоційного стану пацієнток, та проводитися з дотриманням запропонованого лікувально-діагностичного алгоритму.

Ключові слова: гостра спайкова кишкова непрохідність, вагітні, породіллі, діагностичні та лікувальні підходи.

The study is a fragment of the research project "Development and implementation of new methods of minimally invasive and endovascular interventions in metabolic syndrome, endocrine pathology, diseases of the lungs, esophagus, liver and extrahepatic ducts, stomach, pancreas, colon and rectum, blood vessels", state registration No. 0119U003573.

The frequency of surgical extragenital pathology in pregnant women and women giving birth has increased over the past 3 years of war compared to peacetime, and this negatively affects the course of pregnancy and its outcome [2]. Acute adhesion intestinal obstruction (AAIO) is the most complex, difficult to predict, life-threatening, high-cost pathology [5, 6].

The problem of AAIO remains relevant also in emergency abdominal surgery in today's conditions – a full-scale war in Ukraine [10]. AAIO can develop during pregnancy and in the postpartum period and leads to a violation of intestinal patency. Its frequency is 1:40,000–1:50,000 pregnant women [12]. In the conditions of a full-scale war in Ukraine, the relevance of diagnosis and treatment of AAIO in pregnant women and women in labor remains important, since along with the provision of medical assistance to the civilian population, it is necessary to treat military personnel in accordance with evacuation orders from the front line and as a result of shelling of civilian residences [8].

AAIO is registered in the II-III trimester of pregnancy in 70 % of cases, in the I trimester in 15.5 %, during childbirth and the postpartum period, its frequency is much lower [9]. The clinical course of AAIO during wartime acquired certain clinical features. As a result of the martial law, there are changes in etio-

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pathogenetic mechanisms and clinical features of the course of AAIO in pregnant and parturient women [15]. Gestational processes take place against the background of a violation of the motor-evacuatory function of the intestine, stagnation of blood in its vascular system, increased intra-abdominal pressure and a change in the position of the gastrointestinal tract with compression of the intestinal loops [13, 14]. In the early postpartum period, the loops of the small intestine move in the opposite direction [11].

The frequency of AAIO in pregnant women and women in labor is directly related to the increasing frequency of surgical interventions on the organs of the abdominal cavity in the anamnesis, in particular with interventions on the uterus (conservative myomectomy, caesarean section, etc.) and appendages of the uterus, organs of the small pelvis, which leads to the development adhesion disease and as its complication – to AAIO [7].

At the same time, there is an internal pinching of the intestinal loops in the mesenteric pockets; between adhesions; turn; nodulation. The most common reason for the development of adhesion obstruction during pregnancy and in the postpartum period is the so-called "problem of the operated uterus" [11]. The diagnosis of AAIO is based on the complaints of a pregnant or postpartum woman about the presence of severe abdominal pain, nausea, repeated vomiting without signs of relief, stool retention and passing gases, ultrasonography data, X-ray of the abdominal organs (according to raw indications) [11].

According to the development of the pathological process in AAIO during pregnancy and in the early postpartum period, acute intestinal passage disturbance, intramural intestinal hemocirculation disorder, and peritonitis are distinguished [10]. During the war, chronic and acute stress is added to the etio-pathogenetic mechanisms of AAIO, which negatively affects the condition of pregnant women and women giving birth and can confirm the neurogenic, psychogenic theories of the emergence and development of AAIO [4].

The state of war in Ukraine creates new realities of life for pregnant women and women giving birth, who note the deterioration of sleep, mental health, and dyspeptic disorders as a result of a violation of the nutritional regime [1]. The course of AAIO is accompanied by the presence of depression, anxiety, and nervous excitement [4]. Factors of military origin have a negative effect on the body of a pregnant woman, in particular on the gastrointestinal tract, and the frequency of cesarean delivery increases many times [3]. Normalization of psychosomatics is a key mechanism of complex treatment of pregnant and parturient women with AAIO [1, 3, 4].

The choice of diagnostic and treatment tactics, the method and volume of surgical intervention in AAIO is recommended to be carried out on the basis of criteria for assessing the severity of the disease.

The purpose of the study was to develop an algorithm of diagnostic and treatment approaches for acute adhesion intestinal obstruction in modern conditions of full-scale war in Ukraine in pregnant women and in the postpartum period.

Materials and methods. 21 pregnant women and women in labor with a diagnosis of acute adhesion intestinal obstruction were treated in the departments of general and minimally invasive surgery of Odesa Regional Clinical Hospital during the last 3 years of full-scale war. 10 pregnant women and women in labor were delivered by ambulance from the city of Odessa, 11– urgently received from the regions of the region. Patients in the reception room are examined by a surgeon and transferred to the surgical department or the intensive care unit.

Two groups were distinguished taking into account the category of patients (pregnant women, women in labor). The 1st group consisted of pregnant women (n=8), the 2nd group – parturient women (n=13) with acute adhesion intestinal obstruction.

The diagnosis of AAIO was verified on the basis of generally accepted symptoms of intestinal obstruction. Special attention was paid to the careful collection of anamnestic data, especially in terms of transferred operative interventions on the organs of the abdominal cavity. Manifestations of severity of the disease and clinical signs, time of appearance and development of the disease, received treatment at the pre – hospital stage were studied.

A general examination was carried out, laboratory and hardware tests were carried out. Ultrasound examination (ultrasound) is a mandatory examination method. X-ray examinations (examination X – ray of abdominal organs) in pregnant women were carried out according to strict indications, and in women in labor it is a mandatory method of diagnosis of AAIO. Nasogastric intubation, installation of a gas tube against the background of conservative detoxification therapy, preventive antibacterial therapy with semi-synthetic penicillins, cephalosporins of the III–IV generations, metronidazole are the undisputed standard of conservative treatment of AAIO in pregnant and parturient women. Correction of the water-electrolyte balance, plasma losses in the ratio of colloid and crystalloid solutions – 1:4, the use of myotropic spasmolytics (drotaverine, papaverine hydrochloride) or prokinetic drugs and antihistamines are

simultaneously a short preoperative preparation. An epidural catheter was installed in the case of AAIO at the level of Th 7–10 with the introduction of carbostezin 0.25 %, 5–10 mg/h, which can later be used during surgery.

Clexan was used for the prevention of consumption coagulopathy in generally acceptable doses taking into account there are no indicators of the blood coagulation system. Clexane and dexamethasone are mandatory for pregnant women and women in labor in the postoperative period. Conservative treatment measures are carried out simultaneously with diagnostic procedures. The lack of effect from conservative therapy within 2 hours is an indication for surgical intervention. The main goal of surgical treatment is to eliminate the causes of AAIO and restore bowel function. The scope of surgical intervention is determined in each specific case individually and depends on the type of AAIO and the age of the disease. Psychological questionnaires were used to determine the psychosomatic state of pregnant or parturient women with signs of AAIO.

Well – being, activity, mood (WAM) was studied according to the WAM method [1, 4]. Neurotic conditions: anxiety, neurotic depression (ND), asthenia, hysterical reaction type (HRT), obsessive-phobic and autonomic disorders (OphD), vegetative disorders (VD) were studied using the clinical questionnaire K. K. Yakhina and D. M. Mendelevich [1, 3]. Stress resistance was determined according to the method of Holmes and Rage [3, 4]. The level of cortisol – the stress hormone – was determined. The algorithm of medical and diagnostic approaches to acute adhesion intestinal obstruction in pregnant or parturient women in modern conditions of full-scale war in Ukraine and negative psycho – emotional impact was as follows:

1. Tactics are short – term, active – waiting. Adequate conservative therapy was always carried out.

2. Correction of violations of central hemodynamics and microcirculation. Antibiotic therapy. Hepatoprotective therapy. Cerebroprotection. Suppression of the release of inflammatory mediators, immunocorrection, antioxidant therapy.

3. Parallel carrying out of diagnostic manipulations.

4. Prevention of thromboembolic complications, hormonal therapy with dexamethasone.

5. In the absence of an effect from conservative therapy, surgical intervention is indicated – laparotomy, revision of the abdominal cavity, establishment of the type of AAIO and its elimination.

The study was carried out in accordance with the principles of the Declaration of Helsinki. The research protocol was approved by the Local Ethics Committee No. 3 dated November 4, 2024. Informed consent was obtained for the study.

Statistical processing of the research results was carried out using MS Excel XP, Statistica 6.0 application program package with derivation of M±m, percentages using the Student's parametric criterion. At the same time, statistically significant differences were considered at $p<0.05$.

Results of the study and their discussion. Acute adhesion intestinal obstruction in pregnant women was diagnosed in 8 (38.1 %) cases, in women in labor – in 13 (61.9 %). The general characteristics of anamnestic data in acute adhesion intestinal obstruction in pregnant women and women in labor are presented in Table 1.

Anamnestic data indicate that the age of pregnant women and women in labor at the development of acute adhesion intestinal obstruction was 31.1±4.8 years. 5 (62.6 %) women of the 1st group and 8 (61.5 %) of the 2nd group had their first childbirth. Cesarean section in the anamnesis was used in 3 (37.5 %) pregnant women and 5 (38.4 %) parturients, 2 (40.0 %) of them in the current pregnancy. Abortions in history were 37.5 % and 23.1 % in the 1st and 2nd groups, respectively, spontaneous miscarriages – in 75.0 % and 100 %. 37.5 % of pregnant women and 23.1 % of women in labor had surgical interventions due to ectopic pregnancy in their anamnesis. Regarding infertility, 62.5 % of pregnant women and 61.5 % of women in labor received various treatment methods, including instrumental ones. Violation of menstrual function in the 1st group was diagnosed in 4 (50.0 %) and in 8 (61.5 %) – in the 2nd; background diseases of the cervix – in 5 (62.5 %) and in 7 (53.8 %); chronic salpingo – oophoritis – in 7 (87.5 %) and 11 (84.6 %); endometriosis – in 3 (37.5 %) and 5 (38.5 %), respectively.

Operative interventions in the anamnesis for uterine fibroids were performed in 1 (12.5 %) pregnant women and 2 (15.4 %) parturients, for ovarian tumors – in 4 (50.0 %) and 5 (38.4 %)), tubectomy – in 6 (75.0 %) and 3 (23.1 %), ovarian resection – in 4 (50.0 %) and 6 (46.2 %), removal appendages of the uterus – in 1 (12.5 %) and in 2 (15.4 %), respectively.

Among other surgical interventions in the anamnesis for acute adhesive intestinal obstruction, appendicitis ctomy was performed in 7 (87.5 %) pregnant women and in 11 (84.6 %) parturients, both open and laparoscopic cholecystectomy – in 2 (25.0 %) and in 3 (23.1 %), hernia resection – in 3 (37.5 %) and in 5 (38.4 %), laparoscopy is therapeutic and diagnostic for various reasons – in 4 (50.0 %) and in 6 (46.2 %) respectively. Psychoemotional and psychosomatic conditions in acute adhesion intestinal obstruction in pregnant women and women in labor are presented in Table 2.

Table 1

General characteristics of patients, n=21

Characteristic	1st group (n=8)		2nd group (n=13)	
Average age, years	31.9±4.7		30.3±4.9	
	Abs	%	Abs	%
Obstetric and gynecological history				
Birth history	3	37.5	5	38.5
Cesarean section	3	37.5	5	38.4
Abortions	3	37.5	3	23.1
Miscarriage	6	75.0	13	100
History of ectopic pregnancy	3	37.5	3	23.1
Infertility	5	62.5	8	61.5
Disorders of menstrual function	4	50.0	8	61.5
Background diseases of the cervix	5	62.5	7	53.8
Chronic salpingo-oophoritis	7	87.5	11	84.6
Endometriosis	3	37,5	5	38.5
History of uterine myoma	1	12.5	2	15.4
Ovarian tumors in history	4	50.0	5	38.4
Tubectomy	6	75.0	3	23.1
Ovarian resection	4	50.0	6	46.2
Removal of uterine appendages	1	12.5	2	15.4
Extragenital operative interventions				
Appendectomy	7	87.5	11	84.6
Cholecystectomy	2	25.0	3	23.1
Herniotomy	3	37.5	5	38.4
Therapeutic and diagnostic laparoscopy for various reasons	4	50.0	6	46.2

There was no significant difference in indicators between pregnant and parturient women ($p>0.05$). With acute adhesion intestinal obstruction in pregnant and parturient women, the “well-being” index fluctuated within the low level of psycho-emotional state – 25.12–28.18 points. The indicators “activity” and “mood” indicated an average level of psycho – emotional state and ranged from 31.41 to 39.21 points.

Table 2

Psychoemotional and psychosomatic conditions in acute adhesion intestinal obstruction in pregnant women and women in labor (points, M±m)

Indicator	Group 1, n=8	Group 2, n=13
Well-being	25.12±1.39	28.18±1.82
Activity	39.21±1.27	37.04±1.19
Mood	31.41±1.38	35.11±1.66
Anxiety	-1.45±0.43	-1.29±0.45
Asthenia	-1.64±0.36	-1.47±0.56
Neurotic depression	-1.31±0.51	- 1.23±0.41
Hysterical type of reaction (HTR)	0.34±0.12	0.38±0.13
Obsessive-phobic disorder (OPhD)	1.03±0.43	1.16±0.33
Vegetative disorders (VD)	0.78±0.13	0.65±0.12

Maladaptive conditions (anxiety and asthenia) in both groups indicate a level of illness, which was manifested by an increased level of fatigue, weakness, loss of energy, experiencing fear, nervousness and anxious thoughts.

Neurotic depression is characteristic of acute adhesion intestinal obstruction in pregnant and parturient women and was manifested by a tendency to lower mood, loss of interest in various aspects of life and other depressive symptoms. Indicators of HTR, OphD, VD in acute adhesion intestinal obstruction in pregnant and parturient women did not rise to the level of excellent health.

The level of stress resistance in acute adhesion intestinal obstruction in pregnant women and women in labor during wartime was low (in pregnant women – 318.34±2.6, in women in labor – 312.8±2.3 points). Cortisol (stress hormone) levels were 294.8 ± 14.7 nmol/l and 289.3 ± 14.5 nmol/l, respectively, with normal values of 73.8–291 nmol/l. This indicates increased sensitivity to stress and the need for additional support for such patients, as low stress resistance affects the course of acute adhesion intestinal obstruction in pregnant women and women in labor.

The main clinical manifestations of the course of acute adhesive intestinal obstruction in pregnant women and women in labor are presented in Fig. 1.

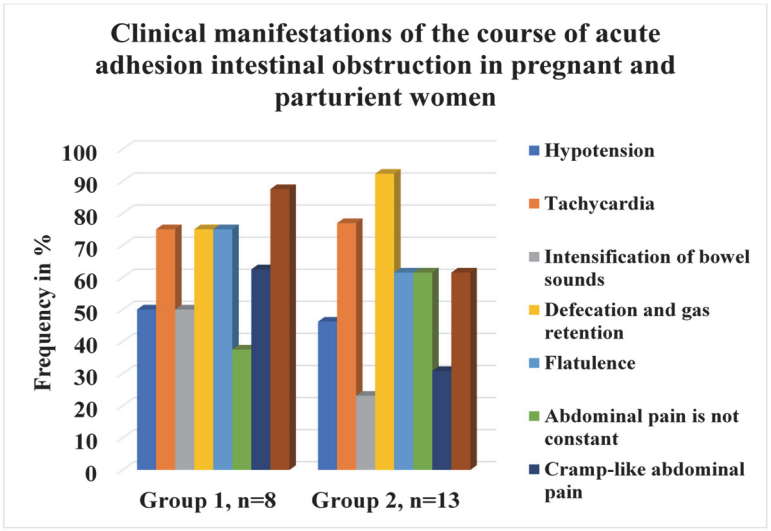

Fig. 1. Clinical manifestations of the course of acute adhesion intestinal obstruction in pregnant and parturient women.

Clinical manifestations of the disease in pregnant women and women in labor depend on the level of intestinal obstruction and the duration of the disease. The pain was severe, at first isolated, and then widespread and spread throughout the abdomen. Over time, the pain stopped, which is a negative prognostic sign. There is continuous vomiting, first of stomach, and then of intestinal contents, hiccups and belching. Cessation of gases, absence of defecation, flatulence are not absolute in acute adhesion intestinal obstruction in pregnant women and in the postpartum period.

In pregnant women and in the early postpartum period, the abdomen with acute adhesion intestinal obstruction is enlarged, asymmetric, swollen, soft, painful (in pregnant women also as a result of an enlarged uterus). In parturient women, the bottom of the uterus is determined above the womb. Kivuly's symptoms – tympanitis with a metallic shade, Spasokukotskyi – Williams' symptom – the sound of a falling drop, Sklyarov's symptom – the sound of a splash – are positive. With the development of intestinal paralysis, noises are not detected.

Ultrasound criteria for acute adhesive intestinal obstruction are intraluminal deposition of fluid with anechoic inclusions, an increase in the diameter of the small intestine >2–3 cm, visualization of folds and rough relief of the mucosa, thickening of the wall of the small intestine >4 mm, pendulum-like nature of peristaltic movements or absence of intestinal peristalsis, presence of free fluid in the abdominal cavity, which were diagnosed in 7 (87.5 %) of women in the 1st group and in 7 (53.8 %) in the 2nd.

Kloiber's cups were found in 5 (62.5 %) pregnant women and 8 (61.5 %) women in labor.

The lack of effect of conservative therapy within 2–3 hours was an indication for surgery. The volume of surgical intervention consisted in dissection of interloop adhesions in 5 (62.5 %) pregnant women and in 8 (61.5 %) parturients. Resection of the small intestine was performed in 3 (37.5 %) pregnant women and in 5 (38.5 %) women in labor, with small – small intestinal anastomosis, intestinal intubation, and drainage of the abdominal cavity. No fatalities were registered.

Acute intestinal obstruction develops more often in pregnant women and women in labor is a consequence of the adhesion process [2]. A high frequency of surgical interventions on the organs of the abdominal cavity and pelvis was found in pregnant and parturient women. The development of acute adhesion intestinal obstruction in pregnant and parturient women is affected by a burdened obstetric and gynecological history [13].

Psychoemotional and psychosomatic conditions should be taken into account in pregnant and parturient women during the development of acute adhesion intestinal obstruction during wartime [1, 3, 4].

Diagnosis of acute adhesion intestinal obstruction in pregnant women and women in labor is difficult. The absence of classic clinical symptoms of the disease is caused by changes in the body of pregnant and parturient women against the background of adverse effects of war factors [10].

Among the features of the clinical course of acute adhesion intestinal obstruction in pregnant women and women giving birth during wartime, it should be emphasized the presence of violations of the adaptive capacity of the patient's body and high sensitivity to the perception of infections against the background of psychoemotional and psychosomatic instability [3, 4].

The use of ultrasound and X – ray examination of the abdominal organs (under strict indications) allows to detect signs of acute adhesion intestinal obstruction in pregnant women and women in labor.

Conservative therapy should last no more than two hours. The treatment-diagnostic algorithm for acute adhesion intestinal obstruction in pregnant and parturient women during the period of martial law should be carried out against the background of psycho – emotional and psychosomatic stabilization [1, 4].

Conclusions

1. Acute adhesion intestinal obstruction in pregnant women and women giving birth in the conditions of martial law in Ukraine is a formidable complication of the gestational process, has important pathogenetic differences and characteristic complications that determine the diagnostic and treatment tactics, which include methods of conservative therapy and surgical interventions.

2. Pregnant women and women in labor with acute adhesion intestinal obstruction in modern conditions of full-scale war in Ukraine have been found to have a low level of psycho-emotional and psychosomatic health, physical well-being, resistance to stress, anxiety, asthenia, and a state of neurotic depression.

3. Diagnostic and therapeutic tactics for acute adhesion intestinal obstruction in pregnant women and women giving birth during martial law in Ukraine should be fast and accurate with the use of additional imaging technologies, standardized depending on the timing, severity of the disease, taking into account the psycho-emotional state of the patients, and should be carried out in accordance with the proposed treatment and diagnostic algorithm.

Prospects for further development are devoted to determining the features of clinical approaches to diagnosis and the choice of treatment tactics for acute pancreatitis in pregnant women in modern conditions of a full-scale war in Ukraine.

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