

Optimization of Diagnostics of Intrauterine Infection

Omonova Guzal Zarifovna

Samarkand state medical university, Department of clinical pharmacology

Abstract: Determination of diagnostic and prognostic criteria of intrauterine infection (IUI). Retrospective analysis of birth history of 302 patients and newborns; prospective study of 49 mother-newborn pairs at risk of IUI to develop a prognostic model and 53 pairs to evaluate the effectiveness of the developed algorithm. The diagnosis of IUI was confirmed/excluded based on the results of additional examination of the newborn on the first day after birth. Clinical and anamnestic criteria for the development of IUI were determined, taking into account their diagnostic information value, and a prognostic table was created for the risk of IUI development, which has an accuracy of 92%. The scheme of management of pregnant women at risk of IUI is offered according to the developed prognostic chart. In the case of IUI without a clear etiological factor, random prescribing of etiotropic drugs is not preferable compared to nonspecific therapy aimed at improving the functioning of the uteroplacental complex.

Key points: intrauterine infection, prognosis, risk factors, etiotropic therapy.

Perinatal infectious pathology is one of the urgent and complex problems of modern obstetrics and is one of the main causes of morbidity in newborns. In Russia, the confirmed frequency of perinatal death as a result of infectious and inflammatory processes is 10-18%, which is second only to intrauterine hypoxia, asphyxia, respiratory diseases and congenital anomalies [2].

The frequency of early neonatal death due to intrauterine infection ranges from 5.3 to 27.4%, and stillbirth reaches 16.8%.

Currently, there are no direct (non-invasive) diagnostic methods that confirm the presence of an active infectious process in the fetus. For clinical practice, it is important to determine not only the infection of the fetus / newborn, but also the level of activity of the infectious process. Diagnosis in utero is possible only by examination of fetal blood obtained by cordocentesis. However, at the current stage of the development of science, there is no information about the standards of indicators of the fetal immune system, and the etiological examination of the pathogen allows only to determine the fact of intrauterine infection, while it cannot be predicted. occurrence of infection in a given patient [9]. In addition, due to the presence of contraindications and the danger of their implementation, the use of invasive examination methods is very limited.

Thus, the question arises of finding indirect reliable methods for predicting the development of an infectious process in a newborn based on the results of the mother's examination. The most important issue is the development of management and treatment algorithms for this category of patients to predict intrauterine infection during pregnancy and reduce the morbidity and mortality of infants.

The aim of this study was to determine the diagnostic and prognostic criteria for the development of intrauterine infection (IUI) in order to improve the effectiveness of treatment and reduce pregnancy complications and neonatal morbidity.

Materials and research methods

A retrospective analysis of the birth history of 302 patients and newborns (2009-2010) was performed to determine the clinical and anamnestic criteria for IUI risk. Meanwhile, in a prospective study, 49 mother-newborn pairs at risk of IUI were observed to develop a prognostic model and 53 mother-newborn pairs at risk of IUI were observed to evaluate the effectiveness of the developed algorithm. Mothers were examined in the second and third trimesters of pregnancy, the diagnosis of IUI was confirmed / excluded based on the results of additional examination of the newborn on the first day after birth; The main materials for the study: venous blood, urine and cerebrospinal fluid (as indicated). DNA detection of potential pathogens was carried out by the polymerase chain reaction (PCR) method using DNA-sorb-AM and DNA-sorb-V kits and AmpliSens amplification kits (manufactured by the Central Research Institute of Epidemiology, Moscow). Russia). Determination of the results was carried out by end-point analysis in the multi-channel automatic fluorescence analyzer "ALA-1/4" (Biosan, Latvia) or by electrophoresis using a UV transilluminator in the electrophoresis chamber "SE-2".

To establish the relationship, the placentas of the women were histologically examined.

Statistical processing was performed using the Statistics-6 software package and standard mathematical Microsoft Excel spreadsheets. To describe indicators dedicated to the retrospective analysis of the birth history of pregnant women, the following are used: non-parametric Kruskal-Wallis analysis of variance, one-way analysis of variance for independent samples and Kullback statistics. Mann-Whitney test was additionally used for statistical processing of immunological studies.

A. Wald's sequential analysis was used to develop an approximate prognostic table for the probability of developing IUI. Fisher's exact test was used to select the most informative features in the diagnostic table. The data content of each of the diagnostic coefficients (I) was calculated using the Kullback formula, which, unlike the Chi-square test (χ^2), evaluates the degree of these differences, not the reliability of the differences in the distributions. Signs with low information ($I < 0.5$) were not considered.

The data content of the prognostic table was checked in the studied group of women. The predicted cases of IUI were compared with the actual cases and a four-field table was constructed, and then the sensitivity, specificity, accuracy, false-positive and false-negative probability were determined.

Research results and discussion

The most important risk factors were formed in the analysis of 302 birth histories in stage I and IUI diagnostic criteria were determined. The diagnosis of IUI was made on the basis of positive results of PCR, enzyme-linked immunosorbent assay and bacteriological studies in newborns. The percentage of intrauterine infection was 21.19% (main group $n=64$). If IUI was not diagnosed during further examination, patients were included in the comparison group ($n = 238$).

The results of the study showed that the most important criteria for the risk of developing intrauterine infection: complex obstetric and gynecological history ($p = 0.00$), previous pelvic inflammatory diseases ($p = 0.00$), chronic pyelonephritis ($p = 0.01$).), presence of extragenital diseases ($p=0.05$); Risk of termination of pregnancy ($p=0.00$), vaginitis ($p=0.00$), bacterial vaginosis ($p=0.00$), respiratory viral diseases ($p=0.03$). Among the ultrasound signs, the following criteria were the most important: fetal development delay ($p = 0.04$), fetal-placental blood flow disorder ($p = 0.02$), polyhydramnios ($p = 0.03$), fetal pyelectasis ($p = 0, 03$), placental calcification ($p=0.03$), placental thickening ($p=0.03$), suspension in amniotic fluid ($p=0.000$).

If IUI is confirmed during the histological examination of the placenta, it is associated with increased and hematogenous infection (32.79%), hematogenous infection (24.59%), increased infection and calcimotor processes (14.75%) and infarctions. Infection (4.92%) predominates.). The percentage of placentas corresponding to the period of pregnancy was 21.31%. In the absence of infection, mainly placental immaturity (more than half of all cases - 58.16%) and signs of

pathological immaturity with adaptive changes (30.54%), excluding the placenta corresponding to the period of pregnancy made - 9.21%. According to the results of the morphological study of the placentas, the differences between the groups are not only highly statistically significant ($p = 0.000$), but very strongly ($\phi = 0.89$).

In the second stage of the study, a prognostic model of IUI was created. The importance of identified risk factors for its formation was re-examined in a prospective study conducted in 49 pregnant women. Examination of the prognostic table showed that it predicts the presence of IUI with 92% accuracy and its absence with 92% accuracy.

The results of the clinical and laboratory examination of the newborn confirmed intrauterine infection in 17 children, and hypoxic damage of the central nervous system (CNS) of various degrees caused by long-term placental insufficiency (PI) was found in 32 cases. In this regard, the main group was divided into two subgroups: 1st - with the presence of IUI ($n = 17$), 2nd - with hypoxic damage of the central nervous system (comparison group $n = 32$).

General infection in premature babies was observed in two cases. Analysis of the species composition of microorganisms obtained from the culture of throat smears in newborns diagnosed with intrauterine pneumonia showed the predominance of hemolytic epidermal staphylococcus and hemolytic enterococcus, massive growth was detected in two cases, and chlamydia in one newborn monoinfection was detected. A child with enterocolitis was diagnosed with mycoplasma infection. In another case, a massive growth of pyogenic streptococcus was found. Composition of the microflora determined in a newborn baby the mother's vaginal discharge corresponded to the microbial landscape. It should be noted that if there is a bacterial etiology of IUI, all mothers to one degree or another showed disturbances in the composition of the vagina. microflora and in women during this pregnancy there were repeated courses of treatment for inflammatory diseases of the lower reproductive system.

In subgroup 2, the rate of premature babies was 12.5%. 69% of newborns of this subgroup have a clinical manifestation of hypoxic-ischemic damage of the central nervous system in the form of depression or agitation syndrome, 34% have a combination of hypoxic and toxic-metabolic damage of the central nervous system. nervous system (nicotine), which manifested itself in the form of depression syndrome.

One of the main conditions for the prevention and treatment of IUI caused by bacterial flora and as a result of increased infection is the timely diagnosis of genital microbiocenosis disorders and their adequate treatment [7]. However, some infectious processes are mediated by PN factors [6,11]. In the case of hematogenous infection, before entering the body of the fetus, the causative agent breaks the placental barrier, first of all, it leads to the development of chorionitis (placenta) with the formation of clinically manifested PN with chronic fetal hypoxia and intrauterine . growth retardation [2]. The hematogenous route of infection is characterized by the predominance of vasculitis of the placental bed of the uterus, followed by the development of intervillousitis and vasculitis of the chorionic plate. If you block the infectious process at this stage, you can prevent not only the development of IUI, but also its complications such as PN. For this purpose, along with etiotropic therapy, it is necessary to carry out metabolic therapy that helps to maintain compensatory and adaptive mechanisms and stabilize the existing pathological process. Given that the implementation of the infectious process is determined by the pathogenicity of the infectious agent and the effectiveness of the body's defense mechanisms, in addition to metabolic therapy, immunocorrective it is recommended to use drugs [3, 5, 8, 10]. . Currently, antibacterial and antiviral drugs used very widely and often without instructions. The final diagnosis of IUI in the uterus can be made only when a specific immune reaction is detected in the fetus or when the pathogen is detected using invasive diagnostic methods, but the use of these methods of examination is very limited due to the presence of contraindications. the danger of their implementation and use. In this regard, a management scheme for pregnant women at risk of IUI was proposed according to the developed prognostic chart (see figure).

Algorithm of medical actions for IUI

If a serious risk (more than 13 points) is detected, extended laboratory tests should be carried out to check the presence of possible pathogens. Laboratory tests should include:

- 1) virological method: the material is blood, discharge from the cervical canal, saliva, urine and, if necessary, amniotic fluid;
- 2) bacterioscopic examination of native and stained smears from the urinary tract, cervical canal and vagina;
- 3) bacteriological examination of the contents of the cervical canal, urinary tract and vagina with culture;
- 4) seroimmunological method;
- 5) PCR to detect the DNA of pathogens (blood, urine, discharge from the cervical canal, amniotic fluid).

Taking into account possible overdiagnosis, viral infection should be checked in at least two ways.

When identifying the pathogen, etiotropic therapy (antiviral and/or antibacterial) should be carried out in parallel with immunocorrection, vaginal sanitation and treatment/prophylaxis of PN. If the risk of IUI is high (more than 13 points) and there are no pathogens, only treatment / prevention of PN is carried out.

To evaluate the effectiveness of the developed algorithm, 53 pregnant women with symptoms of IUI were examined based on the results of ultrasound examination (at least 3 markers). All patients were divided into 2 groups by consecutive random selection (using a table of random numbers):

Group 1 of patients (n=27) received antibacterial and nonspecific therapy according to the standards aimed at improving the function of the uteroplacental complex.

The 2nd group of patients (n=26) was treated according to the developed algorithm of medical actions. The control group consisted of 49 patients without symptoms of IUI, matched for age and other additional data.

Selected groups were checked for homogeneity. Patients in groups 1 and 2 were homogeneous in assessing the risk of IUI, while they had significant differences with the control group. For the control group, this indicator was at a low level of IUI risk: -19.0 points (-25.0- -10.0), and in the comparison groups it corresponded to an average high level of IUI risk and 1 and For groups 2, respectively: 12.0 (1.0-31.0, p=0.00) and 14.0 (5.0-22.0, p=0.00) points. According to anamnestic parameters, groups 1, 2 and control were similar (p>0.017). The results of testing the compared groups for uniformity in the manifestation of infectious processes during pregnancy showed significant differences between the control group and patients at risk of IUI, while there were no significant differences in groups 1 and 2. Examination of the compared groups for homogeneity in the presence of IUI markers on ultrasound also noted significant differences between the control group and the two main groups, while there were no significant differences between groups 1 and 2. According to the results of detection of infectious agents, groups 1 and 2 were homogeneous (p>0.017).

All patients in group 1 received etiotropic therapy. In group 2, etiotropic treatment was only 57.7±9.69% (+13 points) of patients at high risk of IUI in the presence of an identified pathogen ordered.

The rest of the patients received nonspecific therapy aimed at improving the function of the uteroplacental complex.

Differences in the frequency of etiotropic treatment between the compared groups were statistically significant (p=0.001).

When herpes infection was confirmed, antiviral treatment with human immunoglobulin was carried out 25 ml intravenously 3 times a day. When urogenital chlamydia, mycoplasma or ureaplasma is detected, treatment is josamycin macrolides (500 mg 3 times a day for 7-10 days) or spiramycin (3,000,000 IU 3 times a day

7-10 days). 5].

If there were changes in the vaginal flora, the local form of clindamycin in the form of 2% vaginal cream (7 g cream once a day for 3 days) was used in the second stage with the mandatory use of eubiotic drugs: live lyophilized lactobacilli (Acilact) 1 to 2 times a day times for 10 days [1].

In the case of an isolated violation of feto-placental blood flow, Actovegin (200 mg 3 times a day for 3 weeks) or 5 ml of 200 ml of 0.9% sodium chloride solution (10 times) is prescribed intravenously. In the presence of hemodynamic disturbances in the mother-placental system, aspirin is prescribed in the second trimester (250 mg daily for 3 weeks), dipyridamole (75 mg orally 3 times a day) in the second and third trimesters.

The effectiveness of the developed algorithm of medical actions was evaluated based on the results of pregnancy and delivery, including the assessment of the condition of the newborn according to the Apgar scale, as well as the detection of infectious pathogens in newborns. placental tissue.

List of used literature:

1. Rustamovich, A. I., Negmatovich, T. K., & Fazliddinovich, S. D. (2022). БОЛАЛИКДАН БОШ МИЯ ФАЛАЖИ ФОНИДА РИНОСИНУСИТИ БОР БЕМОРЛАРДА БУРУН БЎШЛИҒИ МУКОЦИЛИАР ТРАНСПОРТИ НАЗОРАТИ ТЎҒРИСИДАГИ ЗАМОНАВИЙ ҚАРАШЛАР (адабиётлар шарҳи). JOURNAL OF BIOMEDICINE AND PRACTICE, 7(2).
2. Абдурахмонов, И. Р., & Шамсиев, Д. Ф. (2021). Эффективность применения местной антибиотикотерапии в лечении параназального синусита у детей с церебральным параличом. In НАУКА И ОБРАЗОВАНИЕ: СОХРАНЯЯ ПРОШЛОЕ, СОЗДАЁМ БУДУЩЕЕ (pp. 336-338).
3. Абдурахмонов, И. Р., & Шамсиев, Д. Ф. (2021). Болаликдан бош мия фалажи билан болалардаги ўткир ва сурункали параназал синуситларни даволашда мукорегуляр дори воситасини самарадорлигини ўрганиш. Т [а_XW [i [S US S_S^[ÿe YfcS^, 58.
4. Siddikov, O., Daminova, L., Abdurakhmonov, I., Nuralieva, R., & Khaydarov, M. OPTIMIZATION OF THE USE OF ANTIBACTERIAL DRUGS DURING THE EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE. Turkish Journal of Physiotherapy and Rehabilitation, 32, 2.
5. Тураев, Х. Н. (2021). Абдурахмонов Илхом Рустамович Влияние будесонида на качество жизни пациентов с бронхиальным обструктивным синдромом. Вопросы науки и образования, 7, 132.
6. Абдурахманов, И., Шамсиев, Д., & Олимжонова, Ф. (2021). Изучение эффективности мукорегулярных препаратов в лечении острого и хронического параназального синусита при детском церебральном параличе. Журнал стоматологии и краниофациальных исследований, 2(2), 18-21.
7. Абдурахмонов, И. Р., & Шамсиев, Д. Ф. (2023). БОШ МИЯ ФАЛАЖИ ФОНИДАГИ ПАРАНАЗАЛ СИНУСИТЛАРНИ ДАВОЛАШДА ЎЗИГА ХОС ЁНДАШИШ. MedUnion, 2(1), 14-26.
8. Орипов, Р. А., Абдурахмонов, И. Р., Ахмедов, Ш. К., & Тураев, Х. Н. (2021). ОСОБЕННОСТИ ПРИМЕНЕНИЕ АНТИОКСИДАНТНЫХ ПРЕПАРАТОВ В ЛЕЧЕНИИ НЕЙРОДЕРМИТА.

9. Ахмедов, Ш. К., Тураев, Х. Н., Абдурахмонов, И. Р., & Орипов, Р. А. (2021). НЕКОТОРЫЕ ОСОБЕННОСТИ ТАКТИКИ ПРОДУКТИВНОГО ЛЕЧЕНИЯ ХРОНИЧЕСКОЙ КРАПИВНИЦЫ.
10. Абдурахмонов, И. Р. (2021). Исследование мукоцилиарной транспортной функции слизистой оболочки полости носа у больных с параназальным синуситом на фоне детского церебрального паралича. In Актуальные аспекты медицинской деятельности (pp. 256-259).
11. Абдурахмонов, И. Р., & Тураев, Х. Н. (2022). ОПЫТ ПРИМЕНЕНИЯ СИНУПРЕТА С АНТИБАКТЕРИАЛЬНЫМИ ПРЕПАРАТАМИ В КОМПЛЕКСНОЙ ТЕРАПИИ РИНОСИНУСИТОВ У БОЛЬНЫХ ДЕТСКИМ ЦЕРЕБРАЛЬНЫМ ПАРАЛИЧОМ. Достижения науки и образования, (2 (82)), 88-92.
12. Abdurakhmanov, I., & Shernazarov, F. (2023). SPECIFIC ASPECTS OF TREATMENT OF CHRONIC RHINOSINUSITIS IN CHILDREN. Science and innovation, 2(D10), 164-168.
13. Andryev S. et al. Experience with the use of memantine in the treatment of cognitive disorders //Science and innovation. – 2023. – Т. 2. – №. D11. – С. 282-288.
14. Antsiborov S. et al. Association of dopaminergic receptors of peripheral blood lymphocytes with a risk of developing antipsychotic extrapyramidal diseases //Science and innovation. – 2023. – Т. 2. – №. D11. – С. 29-35.
15. Asanova R. et al. Features of the treatment of patients with mental disorders and cardiovascular pathology //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 545-550.
16. Begbudiyev M. et al. Integration of psychiatric care into primary care //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 551-557.
17. Bo'Riyev B. et al. Features of clinical and psychopathological examination of young children //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 558-563.
18. Borisova Y. et al. Concomitant mental disorders and social functioning of adults with high-functioning autism/asperger syndrome //Science and innovation. – 2023. – Т. 2. – №. D11. – С. 36-41.
19. Ivanovich U. A. et al. Efficacy and tolerance of pharmacotherapy with antidepressants in non-psychotic depressions in combination with chronic brain ischemia //Science and Innovation. – 2023. – Т. 2. – №. 12. – С. 409-414.
20. Nikolaevich R. A. et al. Comparative effectiveness of treatment of somatoform diseases in psychotherapeutic practice //Science and Innovation. – 2023. – Т. 2. – №. 12. – С. 898-903.
21. Novikov A. et al. Alcohol dependence and manifestation of autoaggressive behavior in patients of different types //Science and innovation. – 2023. – Т. 2. – №. D11. – С. 413-419.
22. Pachulia Y. et al. Assessment of the effect of psychopathic disorders on the dynamics of withdrawal syndrome in synthetic cannabinoid addiction //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 240-244.
23. Pachulia Y. et al. Neurobiological indicators of clinical status and prognosis of therapeutic response in patients with paroxysmal schizophrenia //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 385-391.
24. Pogosov A. et al. Multidisciplinary approach to the rehabilitation of patients with somatized personality development //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 245-251.
25. Pogosov A. et al. Rational choice of pharmacotherapy for senile dementia //Science and innovation. – 2023. – Т. 2. – №. D12. – С. 230-235.

26. Pogosov S. et al. Gnostic disorders and their compensation in neuropsychological syndrome of vascular cognitive disorders in old age //Science and innovation. – 2023. – T. 2. – №. D12. – C. 258-264.
27. Pogosov S. et al. Prevention of adolescent drug abuse and prevention of yatrogenia during prophylaxis //Science and innovation. – 2023. – T. 2. – №. D12. – C. 392-397.
28. Pogosov S. et al. Psychogenetic properties of drug patients as risk factors for the formation of addiction //Science and innovation. – 2023. – T. 2. – №. D12. – C. 186-191.