USING THE ROBSON CLASSIFICATION TO ESTIMATE THE CAESAREAN SECTION RATE AND LOOK FOR WAYS TO REDUCE IT

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Abstract

Objective. To assess the rate of Caesarean Section (CS) using the Robson method in the work of obstetric hospitals to find ways to reduce it.

Materials and methods of the study. A retrospective study was conducted at the clinical sites of the Department of Obstetrics and Gynecology No. 2 of the NAO "Astana Medical University", Astana, and the Department of Obstetrics and Gynecology of the Pavlodar branch of the NAO "Semey Medical University", Pavlodar.

For the 4th quarter of 2023, 3087 birth histories of the City Hospital No. 1 of Astana (MO A) and 1022 birth histories of the POPC No. 1 (MO B) were analyzed. The data were pre-processed in MS Excel 2017. Student's T-test was used for statistical analysis**.**

Results. The number of births in MO A and B is 3087 and 1022. The share of CS among births in MO A is 23.94%, and in MO B - 22.31%. The total number of births is 4109.

The study revealed that in MO A the following groups and subgroups made the greatest contribution to the overall frequency of CS: 5a - 158 (21.21%); 5b - 130 (17.45%); 10 - 78 (10.46%); 4b - 76 (10.20%), as well as 2a and 2b - 68 and 63 mothers, respectively (9.13% and 8.46%).

In terms of the frequency of abdominal deliveries in MO B, the greatest contribution to the overall frequency of CS was made by the following groups and subgroups: 5b (27.19%); 5a (15.79%); 2a (7.89%); 6 and 10 (7.46% each).

Conclusions. Relatively low rates of CS were noted in the obstetric block of the City Hospital No. 1 of Astana in groups 3, 6 and 7, which indicates good skills of the staff in managing labor in pure breech presentation. For institution B, these groups are a reserve for reducing the frequency of CS by performing external obstetric version and training in the skills of managing labor in pure breech presentation.

Relatively high rate of CS in the obstetric block of the City Hospital No. 1 of Astana in groups 4b - 10.20% (2.19%) and 5 - 21.21% (15.79%) is a reserve for reducing abdominal delivery by conducting an audit of the effectiveness of labor induction. In group 5, it is necessary to revise the policy of the medical organization in favor of vaginal delivery.

Key words: Robson technique, cesarean section, labor induction, women in labor, labor, reserve for reduction**.**

Резюме

ПРИМЕНЕНИЕ КЛАССИФИКАЦИИ РОБСОНА
ДЛЯ ОЦЕНКИ ПОКАЗАТЕЛЯ ЧАСТОТЫ КЕСАРЕВА СЕЧЕНИЯ
И ПОИСКА ВОЗМОЖНОСТЕЙ ЕГО СНИЖЕНИЯ

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Цель. Оценить показатель частоты Кесарева Сечения (КС) с применением методики Робсона в работе акушерских стационаров для поиска возможностей его снижения.

Материалы и методы исследования. Ретроспективное исследование, проведено на клинических базах кафедры акушерства и гинекологии №2 НАО «Медицинский университет Астана», г. Астана, и кафедры акушерства и гинекологии Павлодарского филиала НАО «Медицинский университет Семей», г. Павлодар.

За 4 квартал 2023 года было проанализировано 3087 историй родов МГБ №1 города Астаны (МО А) и 1022 историй родов по ПОПЦ №1 (МО Б). Данные были предварительно обработаны в MS Excel 2017. Для статистического анализа применили Т-критерий Стьюдента.

Результаты. Количество родов в МО А и В составляют 3087 и 1022. Доля КС среди родов в МО А составляет 23,94%, а в МО Б – 22,31%. Общее количество родов составляет 4109.

В ходе исследования было выявлено, что в МО А наибольший вклад в общую частоту КС внесли следующие группы и подгруппы: 5а – 158 (21,21%); 5б – 130 (17,45%); 10 – 78 (10,46%); 4б – 76 (10,20%), а также 2а и 2б – 68 и 63 родильницы соответственно (9,13% и 8,46%).

По частоте абдоминальных родоразрешений в МО Б наибольший вклад в общую частоту КС внесли группы и подгруппы: 5б (27,19%); 5а (15,79%); 2а (7,89%); 6 и 10 (по 7,46%).

Выводы. Отмечены сравнительно низкие показатели частоты КС в акушерском блоке МГБ №1 г. Астаны 3, 6 и 7-й группе, что свидетельствует о хороших навыках у персонала по ведению родов в чисто ягодичном предлежании. Для учреждения Б эти группы являются резервом для снижения частоты КС путём проведения наружного акушерского поворота и обучения навыкам по ведению родов в чисто ягодичном предлежании.

Сравнительно высокая частота КС в акушерском блоке МГБ №1 г. Астаны в группах 4б - 10,20% (2,19%) и 5-21,21% (15,79%) является резервом снижения абдоминального родоразрешения, путем проведения аудита эффективности индукции родов. В группе 5 необходимо пересмотреть политику медицинской организации в сторону родоразрешения через естественные родовые пути.

Ключевые слова: методика Робсона, кесарево сечение, индукция родов, родильницы, роды, резерв для снижения.

Түйіндеме
КЕСАРЬ ТІЛІГІ ЖИІЛІГІНІҢ КӨРСЕТКІШІН БАҒАЛАУ ЖӘНЕ ОНЫ ТӨМЕНДЕТУ МҮМКІНДІКТЕРІН ІЗДЕУ ҮШІН РОБСОН КЛАССИФИКАЦИЯСЫН ҚОЛДАНУ

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Мақсаты. Акушерлік стационарлардың жұмысын талдауда Робсон әдісін қолдана отырып, оны төмендету мүмкіндіктерін іздеу үшін кесарькесарь тілігі жиілігінің көрсеткішін бағалау.

Зерттеу материалдары мен әдістері. Ретроспективті зерттеу "Астана медицина университеті" КЕАҚ «№2 акушерлік және гинекология» кафедрасының және "Семей медицина университеті" КЕАҚ Павлодар қаласы филиалының «Акушерлік және гинекология» кафедрасының клиникалық базаларында жүргізілді.

2023 жылдың 4 тоқсанында Астана қаласының №1 ҚҚА (ММ А) бойынша 3087 босану тарихы және Павлодар қаласының №1 ПОПО (ММ Б) бойынша 1022 босану тарихы талданды. Деректер MS Excel 2017 бағдарламасында алдын ала өнделген. Статистикалық нәтиже үшін студенттің Т-критерийі қолданылды.

Нәтижелер. ММ А және Б бойынша босану саны сәйкесінше, 3087 және 1022 құрайды. ММ А – да босану арасындағы кесарь тілігінің үлесі 23,94%, ал ММ Б - 22,31% құрайды. Босанудың жалпы саны-4109.

Зерттеу барысында ММ А-да келесі топтар мен іштоптар кесарь тілігінің жалпы жиілігіне ең үлкен үлес қосқаны анықталды: 5а-158(21,21%); 5б– 130 (17,45%); 10– 78 (10,46%); 4б-76(10,20%), сондай-ақ 2а және 2б – сәйкесінше, 68 және 63 (9,13% және 8,46%).

Абдоминальды жолмен босану жиілігі бойынша ММ Б-да кесарь тілігінің жалпы жиілігіне ең көп үлес қосқан топтар мен іштоптар: 5б (27,19%); 5а (15,79%); 2а (7,89%); 6 және 10 (әрқайсысы 7,46%).

Қорытынды. Астана қаласының №1 ҚҚА-ның акушерлік блогында 3, 6 және 7-ші топта кесарь тілігі жиілігінің салыстырмалы түрде төмен көрсеткіштері атап өтілді, бұл медициналық қызметкердің таза жамбаспен келу жағдайында босандыру дағдыларының жетік меңгергендіктерін көрсетеді. Б мекемесі үшін бұл топтар сыртқы акушерлік бұрылысты жүргізу және таза жамбаспен келу жағдайында босандыру дағдыларын үйрету арқылы кесарь тілігі жиілігін төмендетуге арналған резерв болып табылады.

Астана қаласының №1 ҚҚА-ның акушерлік блогында 4б - 10,20% (2,19%) және 5 - 21,21% (15,79%) топтарында кесарь тілігінің салыстырмалы жоғары жиілігі босану индукциясының тиімділігіне аудит жүргізу арқылы абдоминальді жолмен босануы жиілігін төмендету резерві болып табылады. 5-топта медициналық ұйым босану саясатын табиғи жолмен босандыруға бағыттай отырып қайта қарау қажет.

Түйінді сөздер: *Робсон әдістеме, кесарь тілігі, босану индукциясы, босанған әйелдер, босану, төмендету резерві.*

Relevance

According to a new study by the World Health Organization (WHO), the use of cesarean sections continues to grow worldwide, now accounting for more than 21% of all births. [16].

Abdominal delivery rate has increased in all regions of the world, with the highest one in Latin America and the Caribbean (44.3% (41.3–47.4%)) and the lowest one in the African region (4.1%) (3.6–4.6%)) [15]. Not everywhere women have equal access to C-section surgery – in the world's least developed countries only 8% of babies are born this way, and in sub-Saharan Africa - only 5%, and in five countries around the world – the Dominican Republic, Brazil, Cyprus, Egypt and Turkey – the number of such operations exceeds the rate of natural birth. [9]. According to the World Health Organization (WHO), over the past decade, the frequency of CS has reached its maximum and amounted to 25-30% in economically developed countries, and the factors contributing to the increase in the frequency include an increase in the average age of women giving birth, obesity, the birth of children over 4000 grams, as well

as non-medical problems – an increase in the number of lawsuits against obstetricians and gynecologists [5].

Currently, WHO experts express serious concern about the increase in the number of CS performed without direct indications. The proportion of newborns born with the help of CS is already 20% of the total, and if the current trend continues, then by 2030 this figure may grow to 30% [8,10].

In the Republic of Kazakhstan over the past decades there has been a noticeable increase in the frequency of CS. For example, in 1990, only 4.6% of all births were performed using this operation, while by 2018 this figure had risen to 23.5% [11]. According to some researchers, in the Almaty region the rate of CS in 2019 was 35.8% [2], in the Pavlodar region at a level 3 perinatal center in 2022 it increased to 27.3% [9], in the same year in the Turkestan region region - 18.3% [4]. Such statistics raise serious questions about medical practices and ethical principles. And the use of operative delivery can lead to various consequences for the mother and child, such as placentation abnormalities, intraoperative complications and the risk of hysterectomy. In addition, there is evidence that

children born via CS are exposed to various hormonal, physical and other influences [3, 20, 21, 24]. Obstetric hospitals are not taking full advantage of the potential to reduce the rate of C-sections. More research and rigorous guidelines need to be developed to assess the indications for limiting the overuse of CS and to ensure that it is performed only in cases of real medical need. This will reduce risks to maternal and newborn health, as well as make efficient use of health resources.

The trend towards an increase in the rate of operative birth has prompted the global community to conduct research to identify effective action taken to improve the rate of abdominal delivery. Understanding population trends in CS rates for both primary and recurrent CS, as well as identifying factors contributing to rapid growth, will provide valuable insights into possible goals and interventions to reduce the incidence of CS. [1, 18].

Since the overall incidence of CS brings together several groups with different levels of risk, dividing it into risk groups is an important first step for comparative analysis. The ten-group classification system, proposed in 2001 by Michael Robson, provides a clinically relevant framework for assessing differences in CS rates, and perinatal events and outcomes can be reviewed in addition to the latter. The simplicity and effectiveness of the Robson Group 10 classification system led to its approval by international health organizations in 2015 and its widespread use around the world, and its use was recommended by the Ministry of Health of the Republic of Kazakhstan [13, 14, 17, 19, 23, 25].

Aim. Estimating the rate of CS using Robson's method in analyzing the work of obstetric hospitals to find opportunities to reduce it.

Research objectives:
1. To determine the rate of CS in obstetric units.
2. Define the groups of women that make the largest and smallest contribution to the overall frequency of CS.
3. Conduct a comparative analysis of CS frequency indicators in 3rd level obstetric hospitals in different regions.

Materials and methods of research. Retrospective studies were conducted at the clinical sites of the Department of Obstetrics and Gynecology No. 2 of NJSC Astana Medical University and the Department of Emergency Medicine, Obstetrics and Gynecology of the Pavlodar branch of NJSC Semey Medical University. The research materials included documentation of the obstetric unit of the Multidisciplinary City Hospital No. 1 (MGB No. 1) in Astana and Pavlodar Regional Perinatal Center No. 1 (POPC No. 1), which are medical organizations (MO) of the 3rd level of regionalization of perinatal care.

For the 4th quarter of 2023, 3,087 birth histories were analyzed in the obstetric block of the City Hospital No. 1 of the city of Astana (MO A) and 1,022 birth histories in the POPC No. 1 (MO B), which included all cases that sought medical help during the specified period of time, registered in the medical information system, in electronic journals, and protocols of operations of these medical organizations. The data was pre-entered into a computer application and processed in MS Excel 2017 . Student's T-test was used for statistical results.

A retrospective analysis of birth histories was carried out with a sample of patients with abdominal delivery, who were distributed according to the Robson classification (Table 1).

Table 1.

Description of the main groups of the M. Robson classification. [22].

1	Primiparas, with a singleton pregnancy in cephalic presentation, ≥ 37 weeks of gestation, with spontaneous onset of labor.
2	Primiparas, with a singleton pregnancy in cephalic presentation, ≥ 37 weeks of gestation, with induction of labor or delivery by CS before the onset of labor.
2a	Induction of labor.
2b	CS before the onset of labor.
3	Multiparous women, without a previous CS, with a singleton pregnancy in cephalic presentation, ≥ 37 weeks of gestation, with spontaneous onset of labor.
4	Multiparas, without a previous CS, with a singleton pregnancy in cephalic presentation, ≥ 37 weeks of gestation, with induction of labor or delivery by CS before the onset of labor.
4a	Induction of labor.
4b	CS before the onset of labor.
5	All multiparas with a history of one or more CS, with a singleton pregnancy in cephalic presentation, ≥ 37 weeks of gestation.
5a	With one history of CS.
5b	With two or more CS in history.
6	All primiparous women with a singleton pregnancy are in breech presentation.
7	All multiparous women with a singleton breech pregnancy, including women with a history of one or more CS.
8	All women with multiple pregnancies, including women with a history of one or more CS.
9	All women with a singleton pregnancy, transverse or oblique position of the fetus, including women with one or more previous CS.
10	All women with a singleton pregnancy, cephalic presentation , <37 weeks of gestation, including women with one or more previous CS.

Table 1 highlights subgroups a and b in groups 2, 4 and 5 to perform more all-embracing evaluation of the prevalence of caesarian, defining the part of certain conditions to this markers.

The rate of the total quantity of caesarian delivery to the total count of spontaneous childbirths and the amount of c-section in each category to the total sum of incidences of operative delivery were assessed.

A comparative test of caesarean regularity markers in obstetric clinicaesarian delivery was performed to look for opportunities to diminish it.

Results

The total of births in MOs A and B are 3087 and 1022, accordingly. The proportion of caesarean among births in facility A is 23.94%, and in facility B – 22.31%. The overall amount of births among women who gave birth in these municipalities is 4109. Examining the rate of caesarian delivery in municipalities A and B groups, equal values were taken, t critical one-sided 1.71, t-statist caesarian delivery 0.01.

The investigation discovered that in MO A the maximum input to the overall caesarean rate was made by the following groups and subgroups: 5a (multiparous women with history of one operative delivery in their anamnesis) – 158 (21.21%); 5b (multiparous women with history of two or more operative delivery in their anamnesis) – 130 (17.45%); 10 (women with gestational age < 37 weeks) – 78 (10.46%); 4b (multiparas with planned caesarean delivery) - 76 (10.20%), as well as 2a and 2b (primiparas with induction of labor and planned caesarean delivery before the onset of labor) - 68 and 63 postpartum women, respectively (9.13% and 8.46%). The smallest number of caesarian delivery regarding the total number of abdominal births, it is presented in the cohorts listed below: 9 (patients with transverse/oblique position of the fetus) – 9 (1.21%); 6 (primiparous patients with breech position of the fetus) – 14 (1.88%); 8 (patients with multifetal pregnancy) – 18 (2.42%); 3 (multiparous with spontaneous onset of labor) – 17 (2.28%) (Table 2).

In the MO B, the major input to the entire count of caesarean was made by groups and subgroups: 5b (27.19%); 5 a (15.79%); 2 a (7.89%) 6 and 10 (7.46% each). The following groups and subgroups made the smallest contribution to the overall caesarian delivery rate: 9 (0.88%); 4b (2.19%); 8 (3.07%). (Table 3).

Table 2.

Classification of M. Robson KS for the 4th quarter of 2023 in Astana.

Groups and subgroups	Absolute quantity			Total	CS rate relative to the total number of operative deliveries %
Month	X	XI	XII	X-XII	
Number of births	1037	1051	999	3087	100%
Number of CS	2 6 5	2 8 3	197	7 45	23.94%
1	12	eleven	12	35	4.70%
2a	thirty	25	13	68	9.13%
2b	18	25	20	63	8.46%
3	6	6	5	17	2.28%
4a	thirty	17	6	53	7.11%
4b	31	31	14	76	10.20%
5a	39	68	51	158	21.21%
5b	44	41	45	130	17.45 %
6	8	2	4	14	1.88 %
7	5	15	6	26	3.49%
8	9	7	2	18	2.42 %
9	2	1	6	9	1.21 %
10	31	34	13	78	10.46%

Table 3.

Classification of M. Robson KS for 4th quarter of 2023 in Pavlodar.

Groups and subgroups	Absolute quantity			Total	CS rate relative to the total number of operative deliveries %
Month	X	XI	XII	X-XII	
Number of births	323	345	354	1022	100%
Number of CS	69	80	79	228	22.31%
1	1	4	6	eleven	4.82%
2a	4	3	eleven	18	7.89%
2 b	2	7	4	13	5.7 %
3	4	0	6	10	4.39 %
4a	4	7	4	15	6.58 %
4b	1	2	2	5	2.19%
5a	8	13	15	36	15.79%
5b	27	21	14	62	27.19%
6	4	7	6	17	7.46%
7	5	7	3	15	6.58%
8	2	2	3	7	3.07%
9	2	0	0	2	0.88%
10	5	7	5	17	7.46%

When matching the outcomes of work according to the Robson classification in MOs A and B in group 1, the rate of abdominal delivery of 4.70% and 4.82%, respectively, does not have a meaningful divergence (Table 3).

The prevalence of caesarean in subgroup 2a (primigravidas with singleton full-term pregnancy in cephalic presentation with induction of labor) was 9.13% in facility A and 7.89% in facility B. In subgroup 2b (caesarian delivery before the onset of labor) in facility A – 8.46% and 5.7% in facility B, the high periodicity of caesarean in facility A demonstrates the lacking efficacy of the approved practice and the preference of women to induction of labor, the need for an inspection of indications and labor induction methods.

Parallel of the rate of caesarian delivery in group 3 (multiparous women without a previous caesarian delivery, with a singleton full-term pregnancy in cephalic presentation with spontaneous onset of labor) is 2.28% in facility A and 4.39% in facility B. Between the two municipalities in this group the result obtained in MO A is more appropriate.

The rate of caesarian delivery in subgroup 4a (multiparous women without a previous caesarian, with a singleton full-term pregnancy in cephalic presentation with induction of labor) was 7.11% in facility A and 6.58% in facility B, which was an unimportant difference between the groups. The rate of caesarian delivery in subgroup 4b (delivery through caesarian delivery surgery before the onset

of labor) in facility A is 10.20%, and in facility B is 2.19%, the high rate of caesarian delivery in subgroup 4b in facility A shows the need to conduct an supervision of the appropriateness of the indications to caesarian delivery, may also indicate a high requirement from women for a planned caesarian delivery due to negative experience during previous births or incomplete psychological preparedness during antenatal care at the clinic.

Comparative analysis of the frequency of CS in 3rd level municipalities of Astana and Pavlodar.

Robson scale	Perinatal center No. 1 in Astana	Regional perinatal center No. 1, Pavlodar
Group 1	35 (4.70%)	22 (4.89%)
Group 2a	68 (9.13%)	18 (7.89%)
Group 2b	63 (8.46%)	13 (5.7%)
Group 3	17 (2.28%)	10 (4.39%)
Group 4a	53 (7.11%)	16 (7.02%)
Group 4b	76 (10.20%)	15 (2.19 %)
Group 5a	158 (21.21%)	36 (15.79%)
Group 5b	130 (17.45%)	62 (27.19%)
Group 6	14 (1.88%)	17 (7.46 %)
Group 7	26 (3.49%)	15 (6.58%)
Group 8	18 (2.42%)	7 (3.07%)
Group 9	9 (1.21%)	2 (0.88%)
Group 10	78 (10.46%)	17 (7.46%)
Total number of CS	745 (23.94%)	228 (22.31%)
Total number of births	3087	1022

The rate of caesarian delivery in group 5 (multiparous women with one or more caesarian section in history, with a singleton full-term pregnancy in cephalic presentation) is the superior; both subgroups made the main input to the overall rate of operative delivery. Thus, in subgroup 5a the indicator in facility A is 21.21%, in facility B – 15.79%. The high rate of c-section in subgroup 5a in facility A may be explained by the medical organization's policy on planned abdominal delivery in women with a history of operative births without attempted vaginal delivery. This subgroup represents a potential reserve for reducing the incidence of cesarean sections (CS) in cases where vaginal delivery remains a feasible option for patients with a single uterine scar. In subgroup 5b within MO A, the rate of CS is 17.45%, while in MO B, it rises to 27.19%. This higher CS rate in group B is attributed to the larger size of the subgroup, which includes women with multiple uterine scars. As more women with previous uterine scars are likely to undergo CS in future pregnancies, the overall number of women with uterine scars will inevitably increase.

Frequency of Operative Births in Group 6.

For primigravidas carrying a singleton pregnancy in breech presentation, the frequency of operative delivery in subgroup A is 1.88%, whereas in subgroup B, it increases to 7.46%. This variation highlights the opportunity for further

reduction in CS rates among first-time mothers, especially where there is a skilled medical team capable of managing labor with a breech presentation, provided no other contraindications are present.

Group 7 Analysis.

This group includes women with a singleton pregnancy in breech presentation, including those with uterine scars. The CS rate in subgroup A is 3.49%, while in subgroup B, it reaches 6.58%. A potential intervention to reduce this rate is performing an external cephalic version (ECV) on all women with a gestational age greater than 37 weeks and an estimated fetal weight between 2500–3600 grams, provided no contraindications to vaginal delivery exist.

Group 8: Multiple Pregnancies and Uterine Scars.

The frequency of operative births in this group is 2.42% for subgroup A and 3.07% for subgroup B. The frequency of CS here depends on factors such as the type of chorion, the fetal distribution, and the history of cesarean sections. As assisted reproductive technologies (ART) and infertility treatments become more common, alongside the increasing number of multiple pregnancies, the overall frequency of CS in this group is expected to rise.

Group 9: Incorrect Fetal Position in Singleton Pregnancies.

In this group, which includes women with a singleton pregnancy and incorrect fetal position (such as transverse or breech), the rate of operative births is consistently high, despite the relatively small size of this subgroup.

Group 10: Preterm Births with Cephalic Presentation.

For preterm births with a singleton pregnancy and cephalic presentation, including those with uterine scars, subgroup A shows a CS rate of 10.46%, while subgroup B has a rate of 7.46%. This indicates a high proportion of high-risk women who require early delivery at a perinatal center, thus highlighting the proper classification of women with preterm births within the region (Diagram 1).
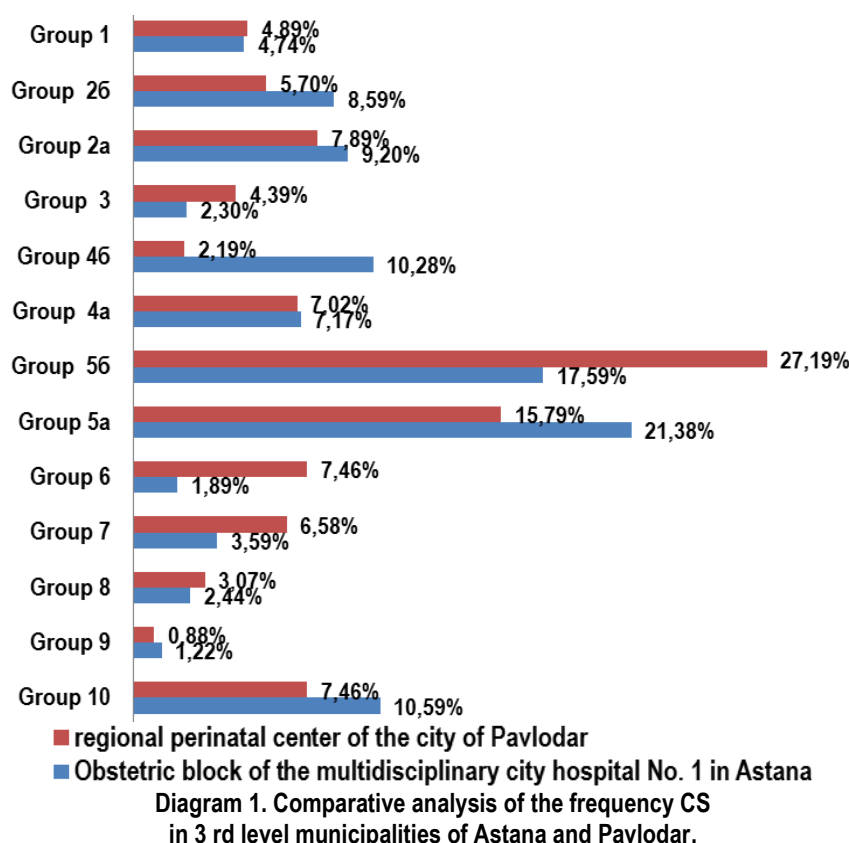
The Robson Classification: A Tool for Improvement.

The *M. Robson* scale is a flexible tool that can be used to evaluate and compare the capacity for improving obstetric services. In MO A, the combined contribution of groups 2, 4, and 5 to the overall CS rate is 56.25%, indicating that there are opportunities to reduce the CS rate in group 2. These three groups should be the primary focus for efforts to decrease the frequency of CS, as higher overall CS rates demand closer attention to group 2. Furthermore, groups 6 and 7 contribute significantly to the CS rate (71.93%). The number of patients in these groups can be reduced by performing external cephalic versions and transferring them to groups with cephalic presentation, where there is a higher likelihood of successful vaginal delivery.

Discussion

The analysis of operative delivery rates using the M. Robson scale, in line with WHO recommendations, has revealed substantial potential for enhancing obstetric care at both City Hospital No. 1 and the regional perinatal center in Pavlodar.

The Perinatal Center No. 1 in City A showed relatively low CS rates in groups 3, 6, and 7. In group 3, the CS rate was 2.28% (compared to 4.39%), in group 6 it was 1.88% (7.46%), and in group 7, it was 3.49% (6.58%). These reductions suggest a high level of professionalism among

Diagram 1. Comparative analysis of the frequency CS in 3 rd level municipalities of Astana and Pavlodar.

the medical staff, particularly in managing labor with breech presentation. Subgroup B serves as a potential reserve for further reduction in CS rates through external cephalic version and skill development for managing vaginal births in cases of breech presentation.

In contrast, City Hospital No. 2 in Astana exhibited higher CS rates, particularly in groups 4b (10.20% vs. 2.19%) and 5 (21.21% vs. 15.79%), which presents an opportunity for improvement. To address this, the hospital could audit its labor induction practices and assess the criteria used to select women for induction. Additionally, a reevaluation of the hospital's policy toward vaginal delivery, especially as the number of women with uterine scars increases, is necessary. Ongoing assessment of these groups and continuous analysis of protocols for managing complications will be crucial.

Conclusions

This analysis demonstrates that the Robson classification is a highly practical and implementable method for identifying the groups most likely to contribute to a higher rate of cesarean sections. Its use can facilitate comparative analysis of CS rates within individual institutions, across different obstetric facilities, and between countries or regions.

The authors intend to continue this study with the goal of identifying new strategies to further reduce the frequency of cesarean sections.

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