

Main Causes and Outcomes of Very Early Preterm Births

Ruzieva N.Kh.

Tashkent State Medical University, Tashkent, Uzbekistan

Djhabbarova L.A.

Tashkent State Medical University, Tashkent, Uzbekistan

Received: 31 December 2025; **Accepted:** 23 January 2026; **Published:** 28 February 2026

Abstract: Objective: to establish the main causes and outcomes of preterm pregnancy in the period of 22-27⁶ weeks of gestation. Material and methods. A retrospective study of 100 cases of very early preterm birth (VEPB) was conducted. Results. VEPB more often occurred at the age of 20-29 years in multipregnant women whose anamnesis was aggravated by miscarriage and prematurity, perinatal losses. A high risk of developing pregnancy complications leading to VEPB was IDA (78.0%), pathology of the urinary tract (45.0%), and hypertension (31.0%). The survival rate of newborns up to 25 weeks of gestation was 3.7%, then it increases and by the 27th week it reaches 53.3% ($M \pm m = 31.9 \pm 4.4\%$).

Keywords: Very early preterm birth, causes, complications, perinatal outcomes.

Introduction: Preterm birth (PB) remains one of the most important problems for perinatal medicine specialists in the 21st century. Preterm delivery has not only medical, but also significant psychosocial, economic, and demographic implications, as it determines high infant morbidity and mortality [10]. The incidence of PB ranges from 5% to 18% of all deliveries [4,9,12]. Perinatal mortality in PB is 33 times higher, and stillbirth occurs 8–13 times more often than in term births [11]. In 72–85% of cases, PB is the cause of neonatal mortality [6].

Much has been published on the etiology of pregnancy loss [1,3,5]. However, the literature presents limited and fragmented data on the causes and prevention of PB by gestational age, which is particularly important in perinatal centers.

In Uzbekistan, infant mortality has significantly decreased over the past 20 years; nonetheless, perinatal mortality rates remain consistently high. Currently, PB cases are concentrated in perinatal centers, where they reach 16–20%. Differentiated identification of PB risk factors based on gestational

age and main causes of perinatal losses, depending on fetal weight, will help determine strategic solutions to the problem and new approaches to antenatal fetal protection and reducing maternal and neonatal complications. According to our data, the most problematic are very early and early preterm births [7]. With the ongoing development of perinatal care in our country, this problem has become especially significant.

Objective: To identify the main causes and outcomes of pregnancy loss at 22–27⁶ weeks of gestation.

METHODS

A retrospective analysis of 100 cases of very early preterm births managed at the Republican Perinatal Center during 2020–2023 was conducted. Cases were selected via continuous sampling. Social characteristics, obstetric and gynecologic history, somatic comorbidities, pregnancy course, and outcomes were assessed. Statistical analysis was performed using variation statistics.

RESULTS AND DISCUSSION

Analysis of the age structure (Figure 1) showed that most pregnant women were of active reproductive age (20–35 years) — 84.0% (84 women). Women aged 20–29 years predominated significantly (61.0%) compared to those older than 30 (39.0%).

Pregnancy history revealed that 33.0% were primigravidas, 22.0% were in their second pregnancy, and 45.0% had three or more pregnancies (including

16.0% with five to seven pregnancies). Among these, 9.0% had a markedly complicated obstetric history with recurrent pregnancy loss and perinatal deaths. First births constituted 42.0±5.0% (p <0.001), second — 21.0±4.1%, third — 20.0±4.0%, and the fifth or more — 12.0±3.2%. According to the literature, most women with PB are multiparous with a complicated obstetric history [8].

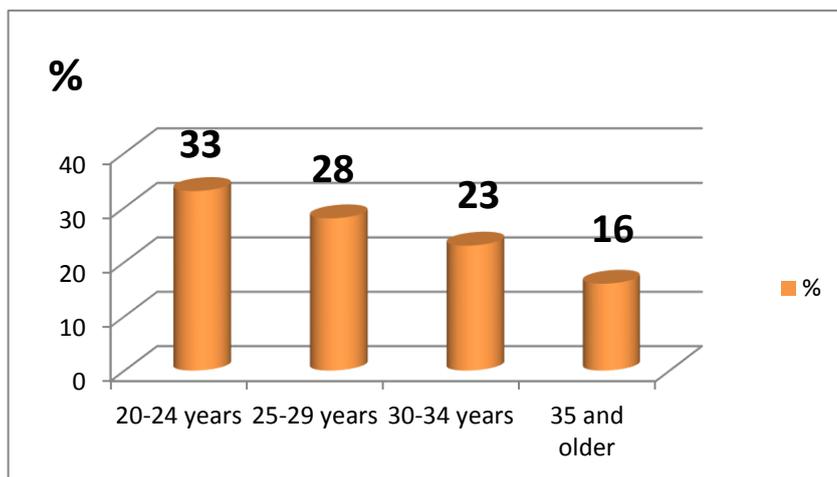


Figure 1. Age distribution of pregnant women

By gestational age, very early PB occurred at 22–24⁶ weeks in 24.0% and at 25–27⁶ weeks in 77.0% of women.

We analyzed obstetric history in 67 multiparous women (Table 1).

Table 1. Obstetric history in multiparous women with very early preterm births

Condition	n=67	%
Abortions	26	38,8
Missed miscarriage	15	22,4
Preterm birth	16	23,9
Severe preeclampsia	6	9,0
Cesarean section	16	23,9
Perinatal losses	20	29,9
Severely complicated obstetric history	9	13,4
Physiological births	22	32,8

The data in Table 1 show high frequencies of prior abortions (38.8%), missed abortions (22.4%), preterm births (23.9%), cesarean sections (23.9%), and perinatal losses (29.9%). The high rate of pregnancy loss (61.2%) and preterm delivery (23.9%) indicates chronic genital inflammation, which is an important preconception risk factor for subsequent PB. High-risk factors also included perinatal losses (29.9%) and previous cesarean section (23.3%). Only one-third of multiparous women had physiologic prior births.

Gynecologic pathology contributed to PB in 23.0% of

cases: primary or secondary infertility — 12.0%, uterine anomalies — 6.0% (bicornuate/unicornuate — 4.0%, septate — 2.0%), uterine fibroids — 2.0%, previous endoscopic adnexal surgery — 6.0%, cervical conization — 1.0%. Pregnancy following IVF occurred in 9.0% of infertile women.

Somatic diseases were also common: iron deficiency anemia (IDA) — 78.0%, urinary tract disease — 45.0%, chronic hypertension — 31.0% (Figure 2). Their frequency exceeded published data [8].

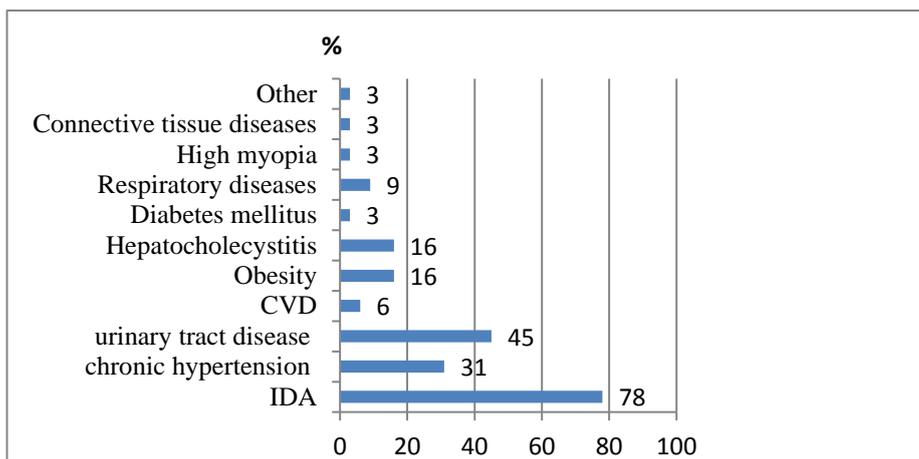


Figure 2. Nature and frequency of somatic pathology in women with early preterm births

Pregnancy complications contributing to PB are shown in Table 2.

Table 2. Pregnancy complications in women with very early preterm births

Complication	n=100	%
Hyperemesis gravidarum	29	29,0
Acute respiratory infection (ARI)	37	37,0
Community-acquired pneumonia	9	9,0
COVID-19 during pregnancy	3	3,0
Threatened miscarriage	21	21,0
Threatened preterm birth	17	17,0
Hypertensive episodes	20	20,0
Preeclampsia	40	40,0
Uterine scar	16	16,0
Placental abruption	14	14,0
Placenta previa	3	3,0
Multiple pregnancy	17	17,0
Cervical insufficiency	11	11,0
Fetoplacental insufficiency (grade 2–3)	44	44,0
Severe FGR (grade 2–3)	25	25,0
Breech presentation	28	28,0
Transverse lie	5	5,0
Amniotic membrane pathology	10	10,0
PPROM	28	28,0
Chorioamnionitis	5	5,0
Antiphospholipid syndrome	3	3,0
Rh-alloimmunization	2	2,0
Congenital anomalies	2	2,0

The main risk factors were fetoplacental insufficiency — 69.0%, viral infections including pneumonia — 49.0%, severe preeclampsia — 40.0%, threatened miscarriage — 38.0%, breech/transverse lie — 33.0%, hyperemesis gravidarum — 29.0%, PPRM — 28.0%. According to V.S.Belousova et al. (2020), PB is a

multifactorial syndrome [2]. Di Renzo et al. (2017) suggest that any risk factor present before or during pregnancy may act as a trigger [11].

Vaginal delivery occurred in 47.0% of cases ($p>0.05$), including induction using vaginal prostaglandins in 11.0%. Spontaneous labor occurred in 36.0%: 16.7%

presented in the first stage and 22.2% in the second. PPROM complicated 44.4% of vaginal births, including chorioamnionitis in 16.7%.

Multiple pregnancy occurred in 22.2% (4 twins, 3 triplets); cervical insufficiency — 16.7%; breech presentation — 13.9%; placental defects — 69.4%. These findings indicate underlying intrauterine infection.

Cesarean delivery occurred in 53.0%. Main indications (Figure 3) included nonreassuring fetal status (47.3%), impending eclampsia (62.3%), uterine scar (30.2%), and placental abruption (21.8%). Additional procedures included ligation of two pairs of uterine vessels (41.5%), B-Lynch sutures (9.4%), and myomectomy (1.9%). Intraoperative atonic hemorrhage occurred in 1.9%; one case of postoperative uterine suture dehiscence and sepsis required metroplasty.

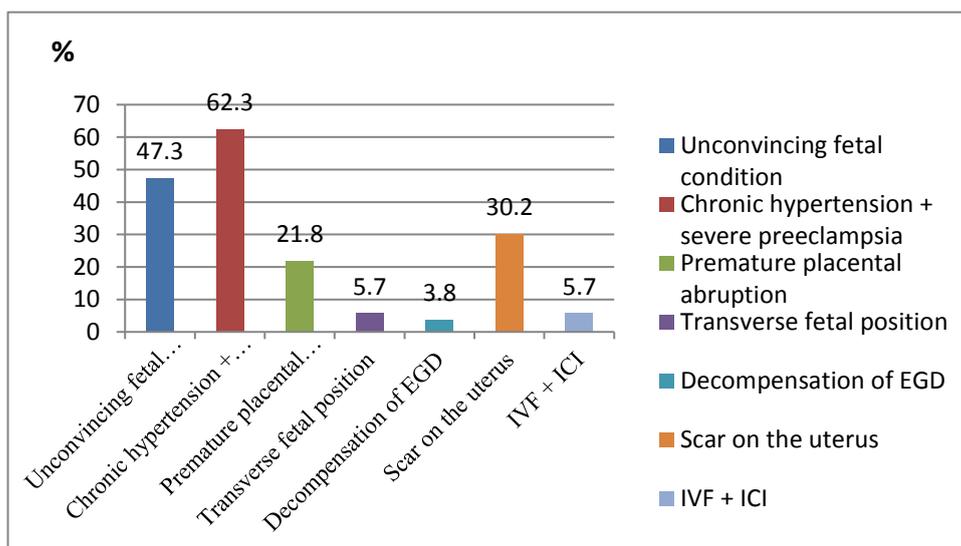


Figure 3. Indications for cesarean delivery in women with very early preterm births, n = 53

A total of 116 newborns were delivered: twins — 8 sets; triplets — 4 sets. Birthweight ranged from 316–699 g (33.6%) and 700–1154 g (66.4%). Weight gain by

gestational week was uneven, with the greatest increase between 26⁶ and 27⁶ weeks (+131 g) (Figure 4).

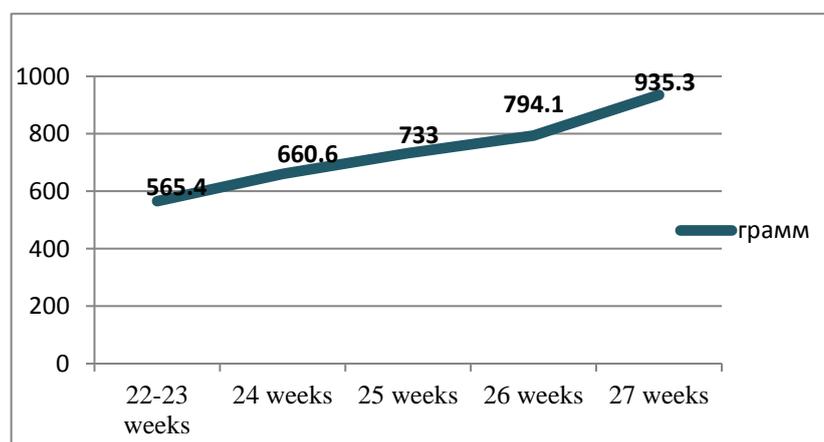


Figure 4. Birth weight of newborns according to gestational age, grams

Outcomes based on delivery mode are shown in Table 3.\

Table 3. Outcomes of fetuses and newborns according to mode of delivery

Outcome	Vaginal birth		Cesarean section		Total	
	n=59	%	n=57	%	n=116	%
Antenatal fetal death	3	5,1	0	0	3	2,6
Intrapartum death	7	11,9±4,2	1	1,8±1,7*	8	6,9
Early neonatal death	35	59,3	33	57,9	68	58,6

Perinatal mortality	45	76,3±5,5	34	59,7±6,4*	79	68,1±4,4
Survived	14	23,7±5,5	23	40,4±6,4*	37	31.9±4,4

Stillbirths accounted for 9.5% (11/116). Antenatal death occurred only in vaginal deliveries. Intrapartum mortality was 6.6 times higher in vaginal births vs. cesarean (17.0% vs. 1.8%). Neonatal survival was 1.7 times higher after cesarean (40.4% vs. 23.7%, p=0.05).

Outcomes by gestational age are shown in Table 4. Survival increased with gestational age: no survivors at 22–23 weeks; 5.0% at 24 weeks; 22.3% at 25 weeks; 30.8% at 26 weeks; and 53.3% at 27 weeks. Overall survival was 31.9%. Perinatal mortality was 681.0%.

Table 4. Outcomes by gestational age in very early preterm births

Gestational age	Antenatal death		Intrapartum death		Early neonatal death		Perinatal mortality		Survived	
	n	%	n	%	n	%	n	%	n	%
22–23 weeks (n=7)	0	0	5	71,4	2	28,6	7	100,0	0	0
24 weeks (n=20)	1	5,0	1	5,0	17	85,0	19	95,0	1	5,0
25 weeks (n=18)	0	0	2	11,1	12	66,7	14	77,7	4	22,3
26 weeks (n=26)	1	3,8	-	0	17	65,4	18	69,2	8	30,8
27 weeks (n=45)	1	2,2	0	0	20	44,4?	21	46,7	24	53,3
Total	3	2.6	8	6,9	68	58,6	79	68,1	37	31.9

CONCLUSIONS

The main risk factors for very early PB were prior pregnancy loss (61.2%), previous preterm birth (23.9%), and perinatal losses (29.9%). Preconception risk factors included IDA (78.0%), urinary tract disease (45.0%), and chronic hypertension (31.0%). Chronic urogenital infection and tissue hypoxia contributed to pregnancy complications leading to PB. The most frequent complications were fetoplacental insufficiency, viral infections, early preeclampsia, and multiple pregnancy. Cesarean section rate reached 53%. Fetal weight gain from 22 to 27⁶ weeks was uneven. Survival before 25 weeks was only 3.7%, increasing to 53.3% at 27 weeks (mean 31.9%). Perinatal mortality reached 681.0%.

Prevention strategies should focus on preconception counseling for adolescents, treatment of somatic illnesses, post-abortion rehabilitation, and improved antenatal care for high-risk women.

REFERENCE

1. Astashkina M.V. Prevention of extremely early preterm birth in women with intrauterine infection. Abstract of PhD Dissertation. Chelyabinsk, 2021. 24 p.[in Rush.]
2. Belousova V.S., Strizhakov A.N., Svitich O.A. et al. Preterm birth: causes, pathogenesis, management.

Akusherstvo i Ginekologiya (Obstetrics and Gynecology). 2020; (2): 82–87.[in Rush.]

3. Gorina K.A., Khodzhaeva Z.S., Belousov D.M. et al. Preterm birth: past limitations and new opportunities. Akusherstvo i Ginekologiya (Obstetrics and Gynecology). 2020; (1): 12–19.[in Rush.]
4. Djabbarova L.A., Ruziyeva N.Kh., Arifkhanova Z.A. Preterm birth in a perinatal center. In: Problems of Biology and Medicine. “Women’s Health – Nation’s Health”. Proceedings of the International Scientific and Practical Conference. Samarkand, January 21, 2021; 1.1(126): 80–82. .[in Rush.]
5. Dolgushina V.F., Kurnosenko I.V., Astashkina M.V. Intrauterine infection during pregnancy. Akusherstvo i Ginekologiya (Obstetrics and Gynecology). 2021; (6): 41–46.[in Rush.]
6. Lyubchich A.S. Achievements and prospects of the perinatal service in the Republic of Uzbekistan. Nazariy va klinik tibbiyot jurnali. Proceedings of the 1st Scientific and Practical Conference with International Participation “Actual Problems of Perinatal Medicine”. Tashkent, October 9–10, 2019; (5): 11–13.[in Rush.]
7. Ruzieva N.Kh., Djabbarova L.A., Djabbarova Yu.K. Causes and approaches to reducing preterm birth

- using international strategies. RR-HEALTH Journal. Andijan. 2021; 1(9): 14–18.[in Rush.]
8. Yuldasheva N.O., Musabayeva A.M., Saparaliyeva A.Kh., Absalyamova M.M., Edilova K.B., Sariyeva R.S., Izbasarova R.S. Preterm birth: analysis of causes and perinatal outcomes. Vestnik KazNMU. 2017; (3): 15–23.[in Rush.]
 9. Di Renzo D.C., Cabero Roura L., Facchinetti F.[et al.]. Preterm labor and birth management: recommendations from the European Association of Perinatal Medicine. The journal of maternal-fetal & neonatal medicine. Med. 2017. Vol. 30, № 17. P. 2011–2030.
 10. Eric O Ohuma, Ann-Beth Moller, Ellen Bradley , Samuel Chakwera, Laith Hussain-Alkhateeb. National, regional, and global estimates of preterm birth in 2020, with trends from 2010: a systematic analysis// Lancet. 2023 Oct 7;402(10409):1261-1271. doi: 10.1016/S0140-6736(23)00878-4
 11. Neonatal mortality data // [https://data.unicef.org/resources/dataset/neonatal-mortality-data/January 2023](https://data.unicef.org/resources/dataset/neonatal-mortality-data/January%2023).
 12. Walani SR Global burden of preterm birth - 10 June 2020 - International <https://doi.org/10.1002/ijgo.13195>