

The influence of changes in the premature births prevention and management on the perinatal outcomes in premature infants in a period of 25 years

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SUMMARY

Introduction. The incidence of preterm births remains at a constant level of about 6-7%. Preterm births occur as a result of spontaneous premature development of the regular patrimonial activity, preterm premature rupture of the membranes or elective delivery, caused by abnormalities that can complicate pregnancy. *The aim* of the work was to analyze the influence of various changes in the premature births prevention and management on the state of newborns and their survival during the last 25 years of observations.

Materials and methods. There were performed retrospective review and comparative analysis of 80 premature infants histories that were born in the period from 01.01.2009 to 31.12.2013 and consisted the study group. The same number of premature newborns histories that were born in the period from 01.01.1993 to 31.12.1997 were included in the control group.

Results. The prolongation of pregnancy as a result of tocolysis did not lead to the reduction of perinatal mortality and the duration of resuscitation. In turn, the use of antenatal corticosteroids reduced the incidence of perinatal infections, as well as the perinatal mortality in the study. There was significant decrease of the perinatal mortality in both study groups when using the antibiotic therapy. The significant positive influence of the operative delivery method on the perinatal mortality have not been proved.

Conclusions. There was observed the increased proportion of operative premature births without reduction of perinatal mortality and the incidence of congenital infection among premature infants. Prophylactic use of the antenatal corticosteroids reduced the incidence of perinatal morbidity and mortality. We found out the increased frequency of tocolytic agents use while its effectiveness was reduced. Currently, the prolongation of pregnancy does not increase the incidence of congenital infections. It was revealed a significant reduction of the perinatal mortality in premature infants of both study groups if antibiotic therapy was applied.

Key words: premature infants (newborns); perinatal mortality; perinatal morbidity

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INTRODUCTION

The incidence of preterm births remains at a constant level of about 6-7% [1]. Preterm births occur as a result of spontaneous premature development of the regular patrimonial activity, preterm premature rupture of the membranes or elective delivery, caused by abnormalities that can complicate pregnancy [2-3]. The quality of perinatal medical care has significantly been improved, that leads to the early detection of starting pathology development of pregnancy, but at the same time there is a large number of pregnancies with the high risk of preterm labour. In addition, the thorough monitoring of high-risk pregnancy can detect the early threat of intrauterine hypoxia and leads to the earlier iatrogenic premature delivery. This tactic results in the reduction of perinatal mortality, but at the same time the incidence of preterm births increases. Medical tactics in the preterm births prevention has also been changed. The main achievement was the introduction of the prophylactic use of antenatal corticosteroids in order to accelerate lung maturation of the foetus. Numerous works devoted to premature births have revealed that approximately 80% of them occur due to the infectious processes, especially arising by ascending paths spreading. Modern obstetrics textbooks remark antibiotic therapy in addition to tocolytic agents use. In the last decade the approach to the choice of premature delivery mode especially in the wrong position of the foetus has changed, and here with it should improve the state of newborns and reduce the frequency of birth trauma. In 1974 Reynolds i Steward noticed the advantage of the caesarean premature delivery [4]. But the opinions on this problem are still remaining different. Some reports support the caesarean premature delivery as a less traumatic and reducing the amount of intraventricular haemorrhages [5-7], on the other hand, some publications do not agree

with this concept [8-10]. The gestational age in which newborns have the ability to self-existence has been significantly reduced. However, those that were born too early and with an extremely low birth weight had a higher risk of severe ocular, pulmonary and neurological complications [11-13].

AIMS

The aim of the work was to determine the relationship between the delivery mode, tocolytics and antibiotic therapy use, antenatal corticosteroids administration and the state of newborns considering their gestational age, perinatal morbidity and mortality.

MATERIAL AND METHODS

There were performed a retrospective review and a comparative analysis of 80 premature infants histories born in the Department of Obstetrics at the Medical University of Gdansk, within the period from 01.01.2009 to 31.12.2013 (between 24 weeks + 0 days and 36 weeks + 6 days) and consisted the study group. 80 premature newborns histories that were born in the period from 01.01.1993 to 31.12.1997 were included into the control group. The premature infants from multiple pregnancies, as well as newborns with congenital malformations were excluded from the analysis.

Tab. 1. General characteristics of the studied premature infants groups

	Total number		Gestation weeks+days							
			Prior to 27		28+0-31+6		32+0-33+6		34+0 and more	
	C	S	C	S	C	S	C	S	C	S
	n=80	n=80	n=18	n=12	n=22	n=24	n=18	n=19	n=22	n=25
Gender										
Male	30 38%	30 38%	33%	33%	55%	42%	22%	33%	36%	39%
Female	50 62%	50 62%	67%	67%	45%	58%	78%	67%	64%	61%
Mothers age	31,28 ± 6,97	29,78 ± 6,13	29,11 ± 7,46	30,83 ± 4,83	32,70 ± 7,85	28,08 ± 6,36	33,44 ± 5,55	30,56 ± 7,67	30,00 ± 6,90	30,31 ± 5,66
The Apgar score at 1 minute after birth [points]	6,0 ± 2,6	6,0 ± 2,7	3,0 ± 2,2	3,0 ± 2,1	5,0 ± 2,4	6,0 ± 2,2	5,0 ± 2,5	7,0 ± 1,5	7,0 ± 2,6	7,0 ± 2,7
Birth weight [g] ± SD	1529 ± 549	1411 ± 507	941 ± 256	778 ± 117	1225 ± 374	1216 ± 410	1806 ± 362	1536 ± 526	2087 ± 234	1798 ± 282
Perinatal mortality [%]	175	250	333	670	364	420	0	110	0	0
The complications in the early neonatal period										
Respiratory distress syndrome	30 (38%)	40 (50%)	18 (100%)	6 (50%)	7 (30%)	18 (75%)	7 (38%)	6 (33%)	2 (10%)	10 (39%)
Infection	46 (57%)	44 (55%)	18 (100%)	6 (50%)	14 (64%)	14 (58%)	8 (44%)	12 (67%)	7 (30%)	12 (46%)
Retinopatia	6 (8%)	8 (10%)	3 (14%)	4 (33%)	0	2 (8%)	2 (11%)	0	2 (9%)	2 (8%)
The percentage of beta-agonists use [%]	33%	45%	44%	83%	45%	50%	33%	56%	9%	25%
The effectiveness of tocolysis [%]	85%	72%	100%	100%	100%	17%	33%	20%	100%	100%
The percentage of antibiotic therapy use [%]	15%	40%	38%	50%	18%	17%	44%	56%	9%	46%
Blood glucose levels [mg%]	52 ± 18,9	62 ± 30,1			57 ± 18,6	76 ± 44,3	52 ± 13,8	61 ± 21,7	38 ± 11,3	51 ± 14,6
pH	7,2 ± 0,13	7,2 ± 0,16	7,1 ± 0,13	7,1 ± 0,26	7,3 ± 0,07	7,2 ± 0,16	7,2 ± 0,13	7,3 ± 0,11	7,2 ± 0,12	7,3 ± 0,05
The duration of hospitalization [days]	35 ± 28	27 ± 24	53 ± 35	30 ± 47	39 ± 35	30 ± 28	33 ± 17	27 ± 15	20 ± 9	27 ± 8

Note: C – control group, S – study group

There were analysed: neonatal survival, the presence of congenital infection, and the duration of resuscitation. The effectiveness of operative delivery methods, tocolytic therapy use and the time between giving the drugs and the birth were assessed in the both premature infants groups. We also compared perinatal mortality, infectious morbidity specific to this period, the Apgar score at 1 minute after birth, the incidence of respiratory distress syndrome, blood glucose levels after birth and the time of artificial lungs ventilation applying.

RESULTS

Both study groups were divided into 4 subgroups depending on the gestational age. The analysis of data revealed that in the study group 12 infants (15.0%) were born before 27 weeks of gestation, 24 children (30.0%) - between 28 weeks + 0 days and 31 weeks + 6 days of pregnancy, 19 children (22.5%) - between 32 weeks + 0 days and 33 weeks + 6 days of pregnancy, 25 (32.5%) infants were older than 34 weeks of pregnancy. 18 infants (22.5%) in

Fig. 1. The percentage of preterm infants in the study and control group born vaginally or by caesarean section taking into account their gestational age

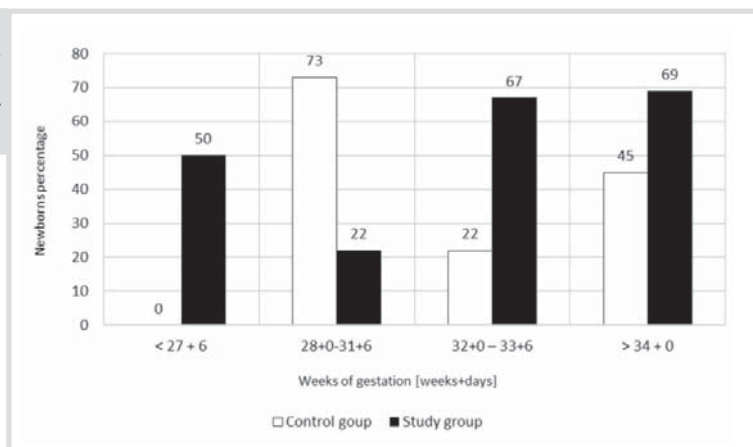
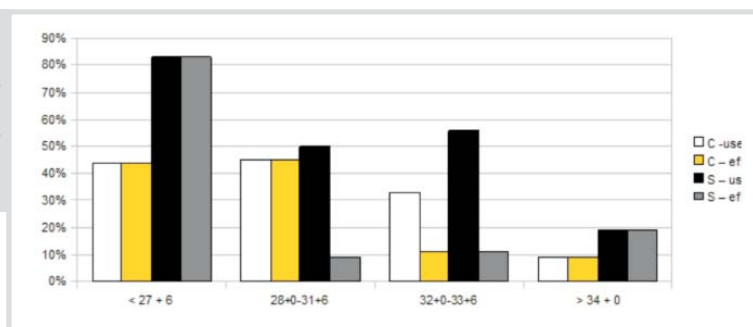


Fig. 2. The percentage of preterm infants in the study and control groups, delivered after tocolytics use and the percentage of preterm infants in these groups after ineffective tocolytic therapy considering their gestational age



Tab. 2. The most frequent indications for caesarean section delivery in the study premature newborns group and in the control group, delivered before and after 31 weeks of pregnancy

	Prior to 31 weeks of gestation			34 weeks + 0 days and more		
	Study group N=30	Control group N=30	p - value	Study group N=30	Control group N=14	p - value
Premature placental detachment	6 20.0%	2 13.0%	>0,001	4 13.3%	2 14.3%	>0,001
Hypertension	8 27.0%	6 38.0%	>0,001	4 13.3%	4 28.6%	>0,001
Intrauterine hypoxia	10 33.0%	2 13.0%	<0,001	16 53.0%	6 42.9%	>0,001
Others	6 20.0%	6 36.0%	>0,001	10 33.3%	2 14.2%	<0,001

the control group were born before 27 weeks of gestation, 22 children (27.5%) - between 28 weeks + 0 days and 31 weeks + 6 days of pregnancy, 18 children (22.5%) - between 32 weeks + 0 days and 33 weeks + 6 days of pregnancy, 25 (27.5%) premature newborns – after 34 pregnancy weeks.

The table 1 shows that both premature infants groups did not differ in gender, birth weight, the Apgar score at 1 minute after birth, laboratory parameters, mortality and the incidence of neonatal complications. It can be noted that the Apgar score of newborns at 1 minute after birth in all time periods was not different

in two infants groups. The state of premature newborns improved simultaneously with the increasing of gestational age. The proportion of vaginal delivery to the Caesarean section delivery was changing to the favour of the last mentioned. The percentage of operational pre-term births in the period of 1993-1997 was 38.0%, and in the period 2009-2013 – 70,0% ($p < 0,01$).

Furthermore, it can be mentioned that the percentage of caesarean premature delivery in the control group was significantly lower than in the study group ($p < 0,001$) (Figure 4). Then we divided all the premature newborns from the

Tab. 3. Perinatal mortality, incidence of neonatal infection, duration of resuscitation and hospitalization, the Apgar score, as well as blood glucose levels and pH in the study and control premature newborns group, delivered by caesarean section and vaginally

Parameters	Study group			Control group		
	caesarean section n = 56 (70%)	vaginally n = 24 (30%)	p – value	caesarean section n = 30 (38%)	vaginally n = 50 (62%)	p – value
Perinatal mortality [%]	29%	17%	>0,001	20%	17%	>0,001
Incidence of neonatal infection [%]	50%	67%	>0,001	59%	67%	>0,001
The duration of Intermittent Mandatory Ventilation (IMV) approach [days]	3 ± 9	0 ± 1	<0,001			
The duration of hospitalization [days]	27 ± 27	25 ± 17	>0,001	25 ± 17	34 ± 28	<0,001
The Apgar score at 1 minute after birth [points]	5 ± 2,8	7 ± 2,0	<0,001	7 ± 2,0	6 ± 2,6	>0,001
Blood glucose levels [mg%]	61 ± 33,4	66 ± 19,8	>0,001	66 ± 19,8	54 ± 19,0	<0,001
pH	7,2 ± 0,17	7,3 ± 0,12	>0,001	7,3 ± 0,12	7,2 ± 0,14	>0,001

Tab. 4. Perinatal mortality, incidence of neonatal infection, duration of resuscitation and hospitalization, the Apgar score as well as blood glucose levels and pH in the control and study premature newborns group, depending on the deferred until birth.

Parameters	Study group			Control group		
	Delivered after effective tocolytic therapy (n = 26)	Delivered after ineffective tocolytic therapy (n = 54)	p	Delivered after effective tocolytic therapy (n = 20)	Delivered after ineffective tocolytic therapy (n = 50)	p
Perinatal mortality [%]	31%	22%	>0,001	20%	17%	>0,001
Incidence of neonatal infection [%]	47%	59%	>0,001	89%	45%	<0,001
The duration of Intermittent Mandatory Ventilation (IMV) approach [days]	4 ± 13	2 ± 3	>0,001			
The duration of hospitalization [days]	25 ± 31	27 ± 21	>0,001	38 ± 28	34 ± 28	>0,001
The Apgar score at 1 minute after birth [points]	5 ± 3,0	6 ± 2,5	<0,001	5 ± 3,0	7 ± 2,6	<0,001
Blood glucose levels [mg%]	81 ± 45,1	55 ± 18,9	<0,001	54 ± 19,2	52 ± 19,1	>0,001
pH	7,2 ± 0,21	7,2 ± 0,13	>0,001	7,3 ± 0,11	7,2 ± 0,13	>0,001

study and control groups depending on the time delivery before and after 31 weeks of pregnancy. There was almost the equal number of infants in both premature newborns groups. We have analysed the indications for caesarean section delivery. The most frequent of them are shown in the table 1. As we can see from the table, in the study premature newborns group the pregnancy before 31 weeks delivered by the caesarean section was performed more often due

to the threatening foetal hypoxia. There were no differences between operational preterm births delivery before and after 31 weeks of pregnancy ($p < 0,001$) in both premature infants groups, with the exception of pre-eclampsia, which was more often during the delivery before 31 weeks of pregnancy. There was a higher percentage of operative preterm births delivery after 31 weeks of pregnancy due to the threatening foetal asphyxia in the control group.

Tab. 5. Perinatal mortality, incidence of neonatal infection and respiratory distress syndrome, duration of resuscitation and hospitalization, the Apgar score, as well as blood glucose levels and pH in the study premature newborns group after antenatal corticosteroids treatment for foetal lung maturation and the control premature newborns group without such treatment

Parameters	Study group			Control group
	Newborns after antenatal corticosteroids treatment (n = 50)	Newborns without antenatal corticosteroids treatment (n = 30)	p	Newborns without antenatal corticosteroids treatment (n = 76)
Perinatal mortality [%]	20%	33%	>0,001	18%
Incidence of neonatal infection [%]	32%	59%	<0,001	57%
Incidence of respiratory distress syndrome [%]	52%	60%	>0,001	39%
The duration of Intermittent Mandatory Ventilation approach [days]	1 ± 1	4 ± 12	<0,001	
The duration of hospitalization [days]	27 ± 20	27 ± 31	>0,001	36 ± 28
The Apgar score at 1 minute after birth [points]	6 ± 2,6	5 ± 2,8	<0,001	5 ± 2,6
Blood glucose levels [mg%]	64 ± 33,9	61 ± 25,4	<0,001	53 ± 19,1
pH	7,2 ± 0,21	7,2 ± 0,13	>0,001	7,2 ± 0,13

Tab. 6. Perinatal mortality, incidence of neonatal infection, duration of resuscitation and hospitalization, the Apgar score as well as blood glucose levels and pH in the control and study premature newborns group when antibiotic therapy was applied or not

Parameters	Study group newborns			Control group newborns		
	Delivered after antibiotic therapy (n = 34)	Delivered without use of antibiotic therapy (n = 46)	p	Delivered after antibiotic therapy (n = 12)	Delivered without use of antibiotic therapy (n = 68)	p
Perinatal mortality [%]	18%	30%	<0,001	0	21%	<0,001
Incidence of neonatal infection [%]	61%	47%	<0,001	52%	80%	<0,001
The duration of Intermittent Mandatory Ventilation (IMV) approach [days]	1 ± 2	3 ± 9	<0,001			
The duration of hospitalization [days]	28 ± 20	26 ± 27	>0,001	54 ± 21	31 ± 27	>0,001
The Apgar score at 1 minute after birth [points]	5 ± 3,2	6 ± 2,3	>0,001	5 ± 2,8	6 ± 2,6	>0,001
Blood glucose levels [mg%]	55 ± 12,6	67 ± 37,6	>0,001	61 ± 25,0	51 ± 18,0	>0,001
pH	7,2 ± 0,18	7,2 ± 0,14	>0,001	7,3 ± 0,09	7,2 ± 0,14	>0,001

Then we analysed parameters according to the mode of premature delivery in both premature newborns groups that are shown in the table 3. As we can see from the table 3 there has not been proven the positive influence of caesarean section delivery on the perinatal mortality, as well as on the state of newborns after birth in the study and control premature infants groups. All analysed parameters according to the mode of premature delivery didn't differ significantly. On the next step we divided preterm infants in both groups depending on the effectiveness of tocolytic therapy. In one case, the pregnancy was prolonged for 48 hours and more and tocolysis was effective. In another case when it wasn't possible to prolong the pregnancy for 48 hours tocolysis was considered to be ineffective. As we can see from the figure 2 tocolytics were used more often in the study group without reference to the gestational age. At the same time despite this fact in the study premature newborns group the effectiveness of the tocolytic drugs use was lower especially before 32 weeks of pregnancy. We have analysed the influence of tocolytic drugs applying on the parameters of newborns state we are studying. It is worth mentioning from the table 4 that no positive influence of tocolytic therapy on the reduction of perinatal mortality during the last 25 years has been revealed, but nowadays the prolongation of pregnancy doesn't lead to the increased frequency of perinatal infectious morbidity specific to this period.

On the next step all the preterm infants in both groups were divided depending on the antenatal corticosteroids use. Such treatment was applied for foetal lung maturation, and in another – antenatal corticosteroids therapy has not been used. The laboratory parameters were assessed in the early neonatal period, taking into account premature newborns group after antenatal corticosteroids treatment. There were revealed the differences in the blood glucose levels at the third minute after birth. The similar differences were found in the Apgar score at 1st minute after birth. The intrauterine infection was treated more often and there was observed the reduction of perinatal mortality in the premature newborns group with antenatal corticosteroids use ($p < 0,001$). At last all the preterm infants in both groups were divided into two subgroups depending on whether the antibiotic therapy was used during pregnancy or not. As we can see, the frequency of antibiotic therapy use in the perinatal period differed only in the cases of premature births after 34 weeks

of pregnancy in the study and control premature newborns groups. Table 6 shows that there is a reduction in the incidence of perinatal infections morbidity in both premature newborns groups when applying antibiotic therapy (with the use of antibiotics). In both premature newborns groups when antibiotic therapy was used the perinatal mortality was lower as well ($p < 0,001$).

DISCUSSION

It has been revealed that the Apgar score of premature newborns didn't differ in both periods of time. The reduction of duration of the newborns hospitalization in the Department of Neonatology can probably be the result of progress in neonatal intensive care units, as well as optimization of pregnant prenatal care. It leads to the birth of newborns that are less mature, but at the same time have better clinically state [14]. In our retrospective analysis in the populations of women who have given a birth in the period of 1993-1997 and 2009-2013 there were observed changes in the management tactics of premature birth.

In the most of analysed gestation categories it has been shown a significantly increased number of caesarean sections. In our work premature newborns in the study group, delivered by caesarean section consisted 70% from the all infants that is 1.5 times higher than in the control premature babies group. Attention is drawn to the fact that in the category of pregnancies before 28 weeks all the premature newborns in the control group were delivered vaginally. Such changes in the obstetric tactics have been also described in the literature [6-8,11,15]. The percentage of performed caesarean sections is mainly the result of obstetricians and neonatologists aim to improve the state of newborns, as well as to reduce the frequency of perinatal traumas [1,2,57,15-21]. The most common indications for the choice of the operational delivery mode were: threatening intrauterine asphyxia, maternal hypertension, bleeding from genital tracts. Preeclampsia was more common among mothers of infants born before 31 weeks of pregnancy in both groups. In turn, the incidence of threatening foetal asphyxia increased (especially in the control group – almost three times) with the increasing of the gestational age. At the same time, the percentage of Caesarean sections because of the threatening intrauterine foetal asphyxia was higher in the study premature newborns group,

especially those that were born before 31 weeks of pregnancy. It can be related with the improvement of prenatal care, that allows early detection of the beginning pathology of pregnancy, especially in the situations where it is not always possible to use cardiotocographic monitoring. In our analysis there have not been revealed positive influence of the operative delivery mode on the perinatal mortality and morbidity in the study and control premature newborns groups. Haque K.N. et al. in their work did not confirm the relationship between caesarean sections and the reduction of perinatal mortality in the newborns weighing less than 1250 g [17]. The results presented in the work and data from the literature suggest that caesarean section should not be recommended as a routine practice in the preterm labour (PTL), if there are no other obstetric indications. It should be remembered that PTL delivered by caesarean section is associated with a greater risk of complications and maternal mortality [2,10,18].

Tocolytics (also called anticontraction medications or labour repressants) – were first recognised for their ability to suppress uterine contractions in 1959, when Hall et al. observed the tocolytic effects of magnesium sulphate [22]. Following this in 1961 the beta agonist isoxuprine was described as a first-line tocolytic [23]. The wide range of tocolytics in clinical practise reflects the lack of a single ideal agent available. At present an exceptionally effective receptor antagonist to oxytocin is available. Tocolytic therapy is limited for 48 hours to allow the appointment of corticosteroids for the respiratory distress syndrome (RDS) prevention in the foetus in utero. At the same time one of the main purposes of pregnancy prolongation is to facilitate the patient transfer to the territory referral centre, which is prepared for the treatment of premature newborns with the presence of the respective equipment and relevant personnel. Our analysis showed that tocolytic therapy was used in 45% from all cases of PTL in the study premature newborns group and in 33% in the control group. As a result of such treatment in the study group it was possible to delay births caused by PTL for the period, allowing to avoid RDS in the premature infants only in 70% of cases. This percentage was less than in the control group (85%). At the same time there was observed, that the average time from the beginning of beta-agonists use before PTL in the control group was more than twice longer - 8.8 days (in the study premature new-

born group only 4.0 days). Especially this dependency was traced in the case of PTL before 31 weeks of pregnancy. This fact indicates that increased frequency of tocolytic agents use did not lead to the increase of its effectiveness. In addition, our analysis showed that tocolytic therapy management did not influence the reducing of perinatal mortality, and morbidity, as well as the state of newborns at the birth time. In the control premature newborns group there was observed the increased frequency of perinatal infectious mortality, specific to this period, that can be associated with the prolongation of tocolysis.

The major achievement in the last 20 years was the introduction of prophylactic antenatal corticosteroids administration in order to accelerate foetal lung maturation. In 1969 Graham Liggins, while studying enzymes in the lungs of sheep foetuses, discovered that cortisol accelerates its maturation [24]. Then, in 1972 Ross Howie i Graham Liggins published the results of the first randomized trials using betamethasone in people [25]. In the UK from the 80's to nowadays the distribution of the glucocorticoids use during PTL – is about 10%. Already in the 90th antenatal corticosteroids were widely used in the world during PTL. In 1994 the experts of The National Institutes of Health while discussing the Effect of Corticosteroids for Foetal Maturation on Perinatal Outcomes proved positive effect of the antenatal corticosteroids use during PTL [26]. Conclusions of the group of scientists were as follows: 1) Antenatal corticosteroids reduce the neonatal morbidities, the incidence of RDS, intraventricular haemorrhage in premature newborns. 2) The effects of corticosteroids were observed after their use between 24 and 34 weeks of pregnancy 3) Antenatal corticosteroids administration is recommended for pregnant women with threatening PTL, that can lead to the reducing of the neonatal morbidities and mortality. Our work revealed that antenatal corticosteroids administration reduced the neonatal morbidities and mortality due to RDS and infections, specific to the perinatal period in the premature newborns. Besides, there was observed a reduction in duration of resuscitation, improved Apgar score of premature newborns, as well as the higher blood glucose levels in the case of antenatal corticosteroids administration.

The increased number of premature births was the result of subclinical intrauterine infection (55% in the study premature newborns group and 64% in the control premature babies

group) [4,14]. In the early 1970s, a prolonged course of tetracycline, beginning in the middle trimester, was found to reduce the frequency of preterm delivery [27]. This treatment fell into disuse, probably because of tetracycline-related tooth and bone dysplasias in the infants. The results of treatment with erythromycin, targeting *Ureaplasma* or *Mycoplasma* in the vagina, have been mixed [28]. It should be noted that *Ureaplasma* is part of the vaginal microflora in many women, and its presence in the upper genital tract, has not been associated with an increased risk of spontaneous preterm delivery [29]. In recent years it is presumed that ascending bacterial colonization of the decidua results and either uterine contractions or membrane weakening that results in the clinical presentation of preterm labor or PROM (premature rupture of the membranes). Data support adjunctive antibiotic treatment during conservative management of PROM remote from term. Alternatively, current evidence suggests that antibiotic treatment in the setting of preterm labor with intact membranes does not consistently prolong pregnancy or improve newborn outcomes [30]. In our analysis the antibiotic therapy according to the recommendations of the expert group of the Polish Gynaecological Society was applied. This kind of treatment was given immediately after the diagnosis of intrauterine infection if the amniotic membranes were saved or routinely in pregnant women who had premature rupture of membranes. Our analysis suggests that the use of antibiotic therapy during preterm labor can be justified. This strategy reduces the perinatal mortality, and furthermore, these premature newborns needed artificial lung ventilation for the shorter period.

CONCLUSIONS

1. During the last 25 years we observed an increase the share of caesarean sections performed during the preterm labor.
2. No relationship between Caesarean section delivery and the prenatal mortality reduction was found, so as Caesarean section did not cause a reduction of the congenital infection incidence.
3. During the last 25 years there was found out a frequency of tocolytics use at all gestational ages with simultaneous reduction of such treatment effectiveness. There was no positive influence of the tocolysis on the perinatal mortality. However, nowadays the prolongation of pregnancy does not lead to

increased incidence of the infections specific to the perinatal period.

4. Preventive antenatal corticosteroids management reduces perinatal morbidity and mortality of premature newborns. The prevention of respiratory distress syndrome improves the condition of newborns, measured by Apgar score and reduces the time of intensive care procedures use.
5. It was revealed a reduction of the perinatal mortality in both premature newborns groups while applying antibiotic therapy.

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