

EPIDEMIOLOGIC AND RISK FACTORS IN EARLY TERM BIRTH

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Abstract: Early birth is defined as the birth between 37 weeks and 0 days and 38 weeks and 6 days.(1) The purpose of the study was to evaluate the epidemiology and risk factors associated with early birth (37-38 weeks of gestation) compared to term deliveries in the maternity hospital of Sibiu County Emergency Clinical Hospital. Newborns with gestational age between 37 weeks and 0 days and 38 weeks and 6 days who were assisted in the Maternity Hospital of Sibiu County Emergency Clinical Hospital during the period 01.01.2016-31.12.2016 were evaluated. The statistical analysis was performed using SPSS for Windows 10.0; „P” was statistically significant at values <0.05 (confidence interval 95%). The most common maternal pathology associated with pregnancy was thrombophilia (8.2%). 92.6% of the newborns were born in the cranial presentation, 6.8% in pelvic presentation and only 4 cases (0.6%) of the infants were in transverse arrangement.

INTRODUCTION

Early birth is defined as the birth between 37 weeks and 0 days and 38 weeks and 6 days.(1) Spong says that newborns from early birth suffer from diseases that are associated with prematurity as opposed to those born at 39 and 0 days and 40 weeks and 6 days.(2) Early childbirth is an important public health issue and a major cause of poor prognosis in the short term for newborns. It is also associated with increased risk of respiratory distress, jaundice, hypoglycemia and foramen ovale persistence.

In the United States, a retrospective study was carried out which included the births from 19 hospitals between 2002 to 2008. The study included 188,809 births with gestational age ranging from 37 weeks and 0 to 7 days and 41 weeks and 6 to 7 days. The study found that 34.1% of term deliveries were early term deliveries between 37 weeks and 0-7 days and 38 weeks and 6-7 days. It has been shown that there is an important difference in morbidity between births at 37 weeks of gestation versus those of 39 weeks of gestation. There are no major differences in morbidity between births from 38 weeks versus 39 weeks. Respiratory morbidity at 39 weeks is lower than at 37 weeks.(3)

In 2013, a study was published that aimed to assess neonatal morbidity of the infants born late preterm(34 to 36 weeks of gestation) and early gestation term(37 to 38 weeks of gestation) compared to those born on term. The study concluded that infants born early term compared to those born on term have increased risk for neonatal intensive care.(4) It has also been argued that late preterm or early term spontaneous labor is the result of pathological processes.(5) Also, in the specialized literature, it is described early term birth indicated due to maternal pathology (for example, for gastrointestinal disease, aortic odds ratio, aOR 1.72, 95% CI 1.47-2.00, for anemia, aOR 1.40, 95% CI 1.20-1.63).(6)

PURPOSE

The purpose of the study was to evaluate the epidemiology and risk factors associated with early birth (37-38

weeks of gestation) compared to term deliveries in the Maternity Hospital of Sibiu County Emergency Clinical Hospital.

MATERIALS AND METHODS

We carried out a retrospective observational case-control study in the Maternity Hospital of the Sibiu County Emergency Clinical Hospital. Newborns with gestational age between 37 weeks and 0 days and 38 weeks and 6 days who were assisted in the Maternity Hospital of Sibiu County Emergency Clinical Hospital during the period 01.01.2016-31.12.2016 were evaluated. The control group consisted of term newborns, with gestational age between 39 weeks and 0 days and 40 weeks and 6 days with birth weight ranging from +/- 100g. The gestational age was established for all newborns by Ballard score.

Anthropometric data, background data, gestation, parity, IVF pregnancies and spontaneous pregnancies, maternal education, pregnancy pre-existing pathology, pregnancy-related disorders, presentation, birth pattern, birth traumas, physiological weight loss etc were considered in the study.

The statistical analysis was performed using SPSS for Windows 10.0;

„P” was statistically significant at values <0.05 (confidence interval 95%).

RESULTS

During the study period, 649 early-term infants were assisted in the Maternity Hospital of Sibiu County Emergency Clinical Hospital. These represent 23.18% of the total number of newborns assisted during the period studied in our clinic.

The most common maternal pathology associated with pregnancy was thrombophilia (8.2%).

92.6% of the newborns were born in the cranial presentation, 6.8% in pelvic presentation and only 4 cases (0.6%) of the infants were in transverse arrangement.

The control group consisted of a total of 1,260 newborns at term. For each case of early gestation term, 2 cases of term control were chosen.

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Between the two groups there were no statistically significant differences regarding: birth weight, degree of gestation, number of spontaneous abortions, Apgar score at 5 minute, Apgar score at 15 minute, number of days of intensive care hospitalization (table no. 1).

Table no. 1. Comparative result between the two groups

	Early term group	Term group	p
Birth weight (g)	3162.36 ± 396	3209.4 ± 339	0,317
Degree of gestation	2,21±1,58	2,24± 1,69	0,0696
Number of spontaneous abortions	1,04 ± 1,16	0,96 ± 1,08	0,325
Apgar score at 5 minute	9,65 ± 0,69	9,7 ± 0,7	0,487
Apgar score at 10 minute	9,08 ± 1,04	9,3 ± 1,29	0,592
Number of days of intensive care hospitalization.	6,65±5,48	5,33± 6,15	0,510

The mother's age was significantly higher in the early term birth group 28.56 ± 6.28 vs 27.15 ± 5.87 in the term birth group with p < 0.001.

The parity of mothers is lower for the early term birth group 1.72 ± 1.06 vs 1.84 ± 1.24 for the term birth group (p = 0.037).

Newborns in the early term birth group had a significantly higher weight index 2.18 ± 0.44 vs. 2.14 ± 0.16, p = 0.001.

The APGAR score at 1 min is lower for early term group 9.49 ± 0.72 vs term group 9.61 ± 0.71 (p = 0.001).

Hemoglobin at birth is lower in the early term group compared to the term group 16.78 ± 2.56 vs 17.43 ± 2.54 (p = 0.034).

The physiological weight decrease is lower for the early term group 127.69 ± 53.61g vs 178.5 ± 50.22g form term group (p = 0.000).

The number of days of hospitalization is higher for the early-term group 4.3 ± 3.68 days compared to the term group 3.96 ± 3.42 days (p = 0.05).

Distribution by gender is without statistical difference (49.5% male children in the early-term group vs. 46.5% in the control group p = 0.220).

The environment of origin is without statistical difference. 57.6% of the children in the early-term group come from the urban area and 53.8% in the term group p = 0.120.

Twin pregnancy in the early term group was 1.5 times more frequent than in the term group (2.6% vs 1% p = 0.01, OR = 1.50 (1.00-2.26)).

From the early-term group, 3.1% of pregnancies were obtained by ART while in the term group only 0.6% of the pregnancies were obtained by ART, p = 0.001.

In the term group there were more unoptimized pregnancies 30.1% and in the early-term group 22.2%, p = 0.001 OR = 0.88 (0.3 - 0.94). Depending on the mother's training level, we obtained the following results (table no. 2).

Table no. 2. Mother's training level

	Early term group	Term group	p
Without studies	0,8%	1,3%	0,001
Elementary studies	19,9%	24,9%	0,001
Secondary education	35,3%	38,4%	0,001
Higher education	44%	35,4%	0,001

The frequency of prior cesarean section was 1.7 times higher in the early term group 12.3% vs. 5.2% in the term group p = 0.001 OR 1.71. Labor was installed 1.4 times more frequently for early births (41.1% vs 21.3% p = 0.001 OR 1.42 (1.30-1.56)). Birth occurred 1.4 times more frequently by cesarean section in the early-term group 52.9% vs 30.2% for the term group, p = 0.001, OR = 1.40 (1.30-1.51)).

No significant statistically differences were found for the following parameters: resuscitation at birth, respiratory distress, type of detrus and clinical form, birth traumas,

maternal-fetal infections, arterial canal persistence and admission to TINN. The presence of prolonged jaundice in the early term group was found 1.44 times more frequently than in the term group (19.2% vs. 11.7% p = 0.001 OR = 1.44 (1.24-1.68)).

DISCUSSIONS

The increased birth rate of cesarean delivery in the early-term group is largely due to maternal pathology associated with pregnancy. However, following our study, it turned out that a good part of early-term deliveries had spontaneous labor.

Our study found that the most common pathology associated with pregnancy is thrombophilia, a pathology that increases the number of early-term births. Most mothers who gave birth to early-term babies were of advanced age and higher education.

CONCLUSIONS

Evolution of newborns from early-term pregnancies is more often accompanied by:

1. Lower APGAR score at birth;
2. Lower fetal hemoglobin at birth;
3. Lower physiological weight loss;
4. Higher number of days of hospitalization;
5. Increased frequency of prolonged jaundice in early infants.

There were no differences for resuscitation at birth, respiratory distress, type of detrus and clinical form, birth traumas, maternal-fetal infections, arterial canal persistence and admission to Neo-Natal Intensive Care Unit.

Birth was characterized by: larger number of births by caesarean section, labor was spontaneously installed 1.4 times more frequently in the early term group.

Newborns from early-term pregnancies have a less good prognosis than those born on time.

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