



METHOD OF DELIVERY IN MULTIPLE PREGNANCY

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ABSTRACT:

Purpose: To study the methods of delivery, vaginal or with Caesarean section (CS), in women with multiple pregnancy (MP), according to the method of conception: spontaneous or assisted reproductive techniques (ART).

Material/Methods: Data on the method of delivery were analyzed for a total of 356 women with MP, 261 of which were after spontaneous conception and 95 after ART/IVF conception

Results: Out of a total of 261 women with MP after spontaneous conception, 87 ended up with a normal (vaginal) delivery (33.3%) and 174 (66.7%) by Caesarean section (CS). A total of 95 MP after ART, 100% were delivered with CS.

Conclusions: Among women with multiple pregnancy after spontaneous conception, Caesarean section delivery predominates. All women with MP after ART gave birth by Cesarean section delivery (100%). Among women with MP and vaginal delivery, 80% delivered after Oxytocin induction. The most common indication for Caesarean section in spontaneous MP was malpresentation of the fetus / mutual placement of the two twins (50%), followed by fetal asphyxia (33%) and other indications.

Keywords: vaginal delivery, multiple pregnancy, method of delivery, Caesarean section,

INTRODUCTION:

Multiple pregnancies (MPs) usually represent a group of pregnancies at high-risk and should be carefully monitored and followed up to the birth itself in order to reduce the risk for the mother and the fetus.

Twin pregnancies in the fifth and sixth decades carry significantly higher complications rate compared with singleton pregnancies at the same age and twin pregnancies at younger age [1].

Twin pregnancies account for 0,5-2,0% of gestations worldwide. They have a negative impact on perinatal health indicators mainly an increased risk for preterm birth, neonatal morbidity. These disadvantages seems to be more prominent in early-term newborns than in the late preterm ones [2].

A retrospective study of a total of 10,682 deliveries, which include 142 women with twin pregnancies show

that the incidence of twins in this study was found to be 1.32%. The commonest maternal complications were preterm birth and anemia [3, 4, 5].

Twin pregnancies still experience more adverse outcomes as perinatal morbidity and mortality. Classification, management, diagnostic criteria need to be standardized [6].

The CS rates have risen over the decades, from 11,4% in 1996 to 77,9% in 2016. CS become the preferred method of delivery for multiple pregnancies and breach presentations over the years [7]. MP after IVF is the most important contributor to rising CS rates. Reducing its incidence may reduce its CS rate [8]. The percentage of multiple pregnancies delivered via CS is quite high. Many factors were involved in the decision of CS [9].

Other studies on the presentation and mode of delivery in MPs, including 6885 births, show a predominance of vaginal birth (72%), and 28% with Cesarean section (CS). Of vaginally born babies from MPs, induced labor predominates (77%) [10]. CS was performed for mothers with previous CS, multiple pregnancy [11]. Compared with vaginal delivery, women delivering by previous cesarean section had a significantly higher risk of preterm birth in subsequent births [10].

Summary data of 30 pairs of twins with spontaneous vaginal delivery, compared with 86 pairs of twins undergoing Caesarean section showed that the average gestational age was not significantly different for the two methods of delivery: (36.2 weeks for the vaginally delivered twins and 36.0 weeks for the group with Caesarean section). The most common complication of ART is related to the consequences of multiple pregnancy, which can be prevented or minimized by reducing the number of embryos transferred to the uterus, commonly single embryo transfer [12]. ART has been shown to be variably associated with adverse short- and long-term perinatal outcomes, including cerebral palsy, autism, neurodevelopmental imprinting disorders, cancer etc. [13].

PURPOSE

To study the methods of delivery, vaginal or with Caesarean section, in women with MP, according to the method of conception: spontaneous and assisted reproductive techniques (ART).

MATERIALS AND METHODS:

The study includes data from medical records of

women with multiple pregnancies (MPs), between 16 and 40 years old, registered in 3 regional hospitals of South-Eastern Bulgaria: University Hospital: "Prof. Dr St. Kirko-vich", Stara Zagora, Multi-specialty hospitals: "Dr I. Seliminski", Sliven and Burgas.

Data from a total of 23,467 births (2011-2015) were analyzed, of which 14,415 were retrospective (2011-2013) and 9,052 were prospective (2014-2015). During the studied period, out of a total of 23,467 births, 356 women had a multiple pregnancy (2 or more fetuses), with total average frequency of multiple pregnancy - 1.5%. Data on the method of delivery were analyzed for a total of 356 women with MP, 261 MPs after spontaneous conception and 95 MPs after ART/IVF (in vitro fertilization) conception.

In the statistical processing of the information, the following statistical methods were used: Variation analysis - for processing the quantifiable signs, Alternative analysis - for processing qualitatively measurable signs and Correlation analysis - to reveal a causal relationship between some signs.

RESULTS AND DISCUSSION

The comparative outcomes of delivery method in women with MP after spontaneous conception are presented in the table below.

Table 1. Mode of delivery in multiple pregnancy after spontaneous conception

Mode of delivery in multiple pregnancy after spontaneous conception n= 261			
Vaginal delivery	%	Cesarean delivery	%
87	33.3	174	66.7

Out of a total of 261 women with MP after spontaneous conception, 87 ended up with a normal (vaginal) delivery (33.3%) and 174 (66.7%) by Caesarean section (CS). At MP after natural conception, delivery with CS is 2 times more frequent than vaginal delivery (normal birth).

The analysis of data on the mode of delivery in women with MP after ART/IVF conception show that of a total of 95 MP after ART, 100% were delivered with CS, as the most a high percentage is the cephalic presentation of both twins. The male gender predominates the twins born for ART only.

Table 2. Multiple pregnancy after IVF and mode of delivery

Multiple pregnancy after IVF and mode of delivery n= 95			
Vaginal delivery	%	Cesarean section delivery	%
0	0	95	100

Data shows that all 95 MP conceived after IVF technology ended with a Caesarean section.

Women with MP and normal delivery were followed according to the criterion: spontaneous delivery and delivery after Oxytocin augmentation.

Table 3. Normal delivery in multiple pregnancy

Normal delivery in multiple pregnancy n=87			
Spontaneous birth	%	Birth after Oxytocin augmentation	%
16	18.4	71	81.6

Out of a total of 87 women with MP and normal delivery, 16 gave birth spontaneously (18.4%), with normal declared labor activity and 71 (81.6%) women with MB after stimulation of labor with Oxytocin (81.6%).

Regardless of the high rate of stimulation established in our study, it is noticed that the fear of stimulation of birth at MP still exists. The stimulation started with 8 drops per minute, as in 30 min., is increased by another 8 drops via perfusor.

Out of a total of 16 women who gave birth spontaneously, without stimulation, the birth of the 2nd twin was performed from 5 to 10 min. after the birth of 1 twin. Out of a total of 71 MP who gave birth through stimulation with Oxytocin compared to 8 MP, the birth of 2 twins took place within 15 min., without that, this had a significant effect on Apgar at 5 and 10 min. The average gestational age in MB with SC and with normal birth, there was no significant difference: 36.2 years for vaginal delivery and 36.0 for SC. Vaginal birth turns out to be a reasonable option behavior in women with MP after age 33. In the present study, the solution for vaginal delivery is taken mainly based on the age of the mother and the correct presentation of the fetuses, while Caesarean section was performed in older adults patients with malpresentation, PROM (premature rupture of membranes) and fetal asphyxia, which is shown on the table below.

Table 4. Indications for CS in MP after spontaneous conception

Indications for CS in MP after spontaneous conception n=174		
Indications	Number MPs	%
Malpresentation of the fetus	85	49%
Age of the mother	11	6%
PROM /premature rupture of membranes /	21	12%
Fetal asphyxia	57	33%

The most common indication for SC is malpresentation /mutual placement of the two twins /- 85 (49%)/. The second most common indication for S.C. is fetal asphyxia - 57 MP (33%). It was significantly less common as an indication of CS mother's age - 11 (6%). With an indication for PROM, births are authorized through the CS -21 (12%).

The internal structure for indications for SC in our study does not differ substantially from the internal structure for CS indication in literary ones data.

DISCUSSION

In the present study among women with multiple pregnancy (MP) after spontaneous conception, the Caesarean section delivery predominates (66,7%), while in case of MP after ART/IVF, all women gave birth by Caesarean section delivery (100%).

The solution for vaginal delivery is taken mainly based on the age of the mother and the correct presentation of the fetuses, while Caesarean section was performed in older patients with incorrect presentation of the fetuses, PROM (premature rupture of membranes) and fetal asphyxia.

Women ≥ 45 years of age with twin pregnancies and the neonates sustain more severe outcome, compared to singleton pregnancies. It is recommended that a single embryo transfer should be offered when those women are undergoing ART. [14]. Caesarean delivery is associated with an increased risk of admission to neonatal intensive care units because of complications. The vaginal delivery (VD) appears to be a reasonable choice of action for Monochorionic/Diamniotic (MH / DA) MPs after 33rd week of gestation [15].

Similar studies have investigated the importance of vaginal delivery for increasing the risk of adverse neonatal outcome among monozygotic twins [15, 16].

The mode of delivery in MPs after ART/IVF procedures show that the most common indications for Caesarean section were either because of more high age of the mother or incorrect presentation of the fetuses.

Regardless of the mother's age, the decision for vaginal delivery is based mainly on the presentation of the fetuses [17, 18].

The perinatal outcome of twin pregnancies with the first twin in cephalic presentation may differ depending to gestational age (GA) at delivery and planned mode of delivery. At 32-37 weeks, planned VD seems to be favorable, while from around 37 weeks planned CD might be safer [19].

In the present study all women with MP after ART/IVF, gave birth by Caesarean section delivery (100%).

The most common indication for Caesarean section in spontaneous MP was incorrect presentation of the fetus / mutual placement of the two twins (50%), followed by fetal asphyxia (33%) and others indications. Among women with MP and vaginal delivery, 80% delivered after Oxytocin augmentation.

A study on the different modes of birth in MP and

their impact on mother and fetus show that the percentage of cephalic presentation of the fetus during birth was higher in singletons (95.2%) than in MPs (65.8%), while incorrect presentations, such as footling and transverse, are more frequent in MP, (29.8% and 4.4% respectively), compared to singleton pregnancies. (4.3% and 0.4%).

Cephalic presentation was statistically the most common presentation for both twins. When comparing births at term to premature births, no statistical difference was found in the methods of birth [19, 20].

Male gender predominates in MPs, but without statistical difference concerning the anthropometric measures [14].

In the present study data on mode of delivery in women with MP after ART/IVF conception show that of a total of 95 MP after ART, 100% were delivered with CS, as the most common is cephalic presentation of both twins.

The male gender predominates within twins born for ART only.

CONCLUSION

The advancement of assisted reproductive technologies (ART) drastically increased the cases of multiple pregnancy. It is generally known that multiple pregnancy is a highly risky pregnancy, and the choice of delivery method is extremely important, both for the mother and for the children.

The choice of delivery method, vaginal or cesarean, also depends on the method of conception, spontaneous or induced. In the case of spontaneous multiple pregnancy, 33% of women gave birth normally (with vaginal delivery) and 67% - with Caesarean section. In 100% of all women with multiple pregnancy after ART/IVF were delivered with Caesarean section.

Out of a total of 87 women with MP and normal delivery, 16 gave birth spontaneously (18.4%), with normal declared labor activity and 71 (81.6%) women with MB-after stimulation of labor with Oxytocin (81.6%).

In the present study, the solution for vaginal delivery is taken mainly based on the age of the mother and the correct presentation of the fetuses, while Caesarean section was performed in older adults patients with malpresentation, PROM, fetal asphyxia etc.

ABBREVIATIONS:

ART – Assisted reproductive techniques

IVF – In Vitro Fertilization

MP – Multiple pregnancy

CS – Caesarean Section

PROM – Premature rupture of membranes

MH / DA MPs – Monochorionic/Diamniotic Multiple Pregnancies

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Please cite this article as: Lazarov S, Lazarov N. Method of delivery in multiple pregnancy. *J of IMAB*. 2023 Jul-Sep;29(3):5085-5088. [Crossref - <https://doi.org/10.5272/jimab.2023293.5085>]

Received: 21/03/2023; Published online: 08/09/2023



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