

MULTIPLE PREGNANCY – A MATERNAL AND PERINATAL CHALLENGE

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Abstract: *The increased incidence of multiple pregnancy in the last 3 decades are related to the development of human assisted reproduction techniques. The main causes of the increased mortality and morbidity in multiple pregnancy are the prematurity and the low birth weight, therefore being considered a high-risk pregnancy. The purpose of the current study was to determine the correlations between multiple factors that influence or are the consequence of multiple pregnancy. The main goal was to improve the management and the healthcare during multiple pregnancy. The retrospective study was performed at the Clinical Hospital of Obstetrics and Gynecology “Dr. I. A. Sbarcea” Brasov on 418 patients diagnosed with multiple pregnancy from January 2010 to December 2016. It has been found that the majority of births (66.51%) were premature and took place between 24 and 37 weeks of gestation. Caesarean section was the most common way of birth with 72.73% from the total number of multiple pregnancies. This study concludes that multiple pregnancy is an issue in Romanian hospitals due to the maternal and fetal complications that can occur during pregnancy or labor. The maternal and neonatal outcomes may be improved through detection of the high-risk cases and frequent antenatal visits*

Key words: *multiple pregnancy, prematurity, neonatal outcome.*

The increased incidence of multiple pregnancies from the last 3 decades are related to the advances made in the reproductive medicine area, mostly because a greater proportion of pregnant women over 40 years have a higher incidence of multiple gestations, due to the hormonal changes [3]. Multiple pregnancies are identified in approximately 1% of all pregnancies, but are responsible for the increased incidence (~10%) of prenatal mortality [6], [10]. Compared to singletons, in case of multiple pregnancy the incidence of stillbirth increases exponential and the risk of intrauterine

death is at least three times higher [12,13]. The main causes of the increased neonatal mortality and morbidity are the prematurity and low birth weight, together with malpresentations and emergency delivery options. Therefore, multiple pregnancy is considered a high-risk pregnancy [10].

The incidence of multiple pregnancy has increased in the last 3 decades due to the development of human assisted reproduction [2], [8]. Other factors that underlie the ascending incidence of multiple births, beside advances and intensively use of assisted reproductive

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technologies are the noticeable rise in the average age of women giving birth to their first child, because of the hormonal changes [2], [5], [16], [20].

Multiple studies indicate that multiple births engender a greater risk of unfavorable perinatal outcomes compared to singletons. Multiple births are associated with: increased risks of maternal complications (pre-eclampsia and toxemia), higher rates of preterm delivery, low birth weight and fetal or infant death [1], [15].

Because of the high risk associated with increased incidence of adverse obstetric and perinatal outcome, the multiple pregnancy has a high obstetrical risk and needs a special monitoring.

2. Objective

The purpose of the current study was to determine the correlations between multiple factors that influence or are the consequence of multiple pregnancy. The main goal was to improve the management and the healthcare

during multiple pregnancy.

3. Material and Method

The retrospective study was performed in the Clinical Hospital of Obstetrics and Gynecology “Dr. I. A. Sbarcea” Brasov on 459 patients with multiple pregnancy from January 2010 to December 2016. The data have been obtained from the patients charts and birth logs and have been statistically analyzed using Microsoft Excel.

4. Results

The incidence of multiple pregnancies for every year included in the study was: 1.53 % in 2010, 1.63% in 2011, 1.65% in 2012, 1.38 % in 2013 and 1.73% in 2016 year. The highest incidence was registered in 2015 (1.89%) and the lowest incidence was observed in the year 2016 (1.09%), as it can be observed in Figure 1.

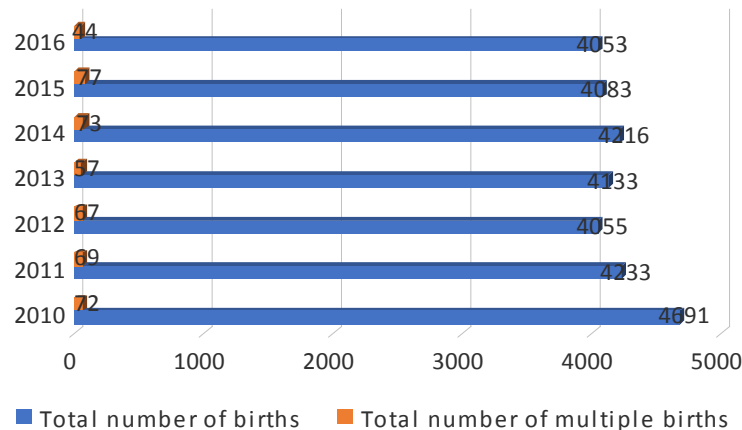


Fig.1. *The incidence of multiple pregnancies in the period of study*

Among the multiple pregnancies from our study 9 were triple pregnancies, one cvadruple pregnancies, the rest of the

patients carrying twin pregnancies (Figure 2).

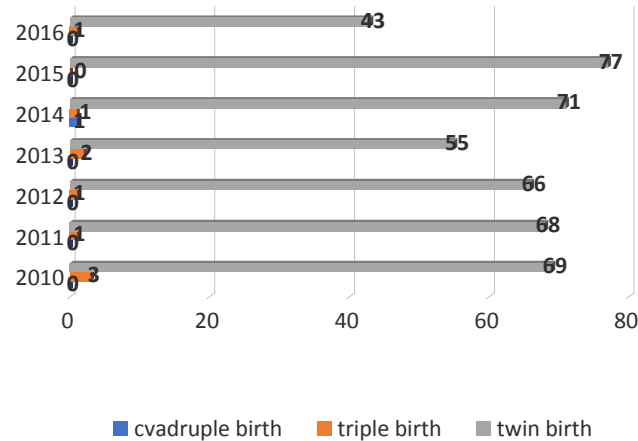


Fig.2. Distribution of multiple pregnancy according to the number of fetuses and the year of study

Regarding the age of the patients, the higher incidence of multiple pregnancy has been found among women above 30 years of age with a rate of 49%, followed by 20-30 age group with a 41% rate. The lowest incidence was found among patients under 20 years, with a 10% rate.

A higher percentage of women from the studied group came from rural areas - 66.75%, whereas from urban areas only 33.25% were registered. Regarding the occupation of women with multiple pregnancies, it has been determined that 55.98% of them were employed, followed by a small difference of women without occupation - 44.02%. From the total number of multiple pregnancies studied during the period 2010-2016, we observed

parity between 1 and 10, as following: 220 of the pregnant women were primiparae while the remaining half were multiparae, 3 of these being at their 10th birth.

A percentage of 88.04% of the recorded multiple pregnancies were registered by a medical caregiver (either by the family doctor or by the obstetrician). The remaining 11.96% have not been registered during the pregnancy, accounting for a total of 50 multiple pregnancies from a total of 459 pregnancies.

A rate of 74.08% of women who have used assisted reproductive methods required in vitro fertilization, 14.81% followed infertility treatment and the remaining 11.11% underwent treatment for sterility (Table 1).

Table 1

Number of multiple pregnancies obtained with assisted reproductive methods

| Year | In vitro fertilization | Sterility treatment | Infertility treatment |
|--------------------|------------------------|---------------------|-----------------------|
| 2010 | 2 | 0 | 1 |
| 2011 | 3 | 1 | 1 |
| 2012 | 4 | 0 | 1 |
| 2013 | 0 | 1 | 0 |
| 2014 | 4 | 0 | 0 |
| 2015 | 3 | 0 | 0 |
| 2016 | 4 | 1 | 1 |
| 2010 - 2016 | 20 | 3 | 4 |

The maternal complication most associated with multiple pregnancy was iron deficiency anaemia (93.54%). In 32 cases we observed cervical incompetence (pathology for which cerclage was performed during the second trimester of pregnancy) and pregnancy-induced

hypertension in 27 cases. Other maternal complications in pregnancy were vulvar and leg varicose veins, gestational edema, polyhydramnios, placenta praevia, gestational diabetes, pre-eclampsia and hemorrhage in placenta praevia (table 2).

Table 2
Number of cases that presented maternal complications in pregnancy

| Complications | No. of cases |
|--------------------------------|--------------|
| Pregnancy-induced hypertension | 27 |
| Leg varicose veins | 6 |
| Vulvar varicose veins | 3 |
| Gestational edema | 9 |
| Polyhydramnios | 3 |
| Placenta praevia | 4 |
| Gestational diabetes | 7 |
| Cervical incompetence | 32 |
| Pre-eclampsia | 6 |
| Iron deficiency anemia | 293 |
| Hemorrhage in placenta praevia | 1 |

Regarding the moment of birth, it has been found that the majority of births (66.51%) were premature and took place between 24 and 37 weeks of gestation. Nevertheless, a significant amount of multiple pregnancies were delivered after 37 weeks (33.39%).

Caesarean section was the most common way of delivery (72.73% from the total

number of multiple pregnancies) while only 27.27% women underwent natural birth. According to the study, the percentage of live children resulted from multiple pregnancies is 98.56%, with a very low percentage of fetal deaths - 1.44% (12 newborns).

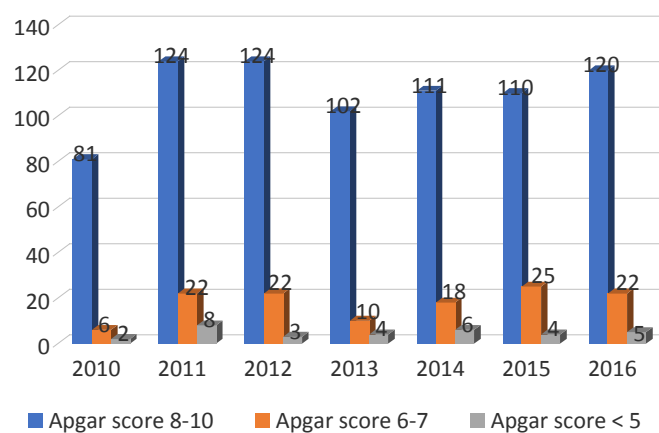


Fig.3. *Distribution of newborns according to the Apgar score*

The study group has also been evaluated from the perspective of the Apgar score and it has been established that 83.10 % of newborns had a score between 8 and 10. There have also been registered several cases of babies with a score between 7 and 6 (13.45%) and 3.44% newborns with Apgar score 5 or below (Figure 3).

Of the total number of twins, the majority of infants had weight between 1,500 and 2,000 g and were born before 37th weeks, 35% had weight above 2,500 g and were born after 37th weeks. 10% of newborns had a poor prognosis because of the low and very low birth weight and prematurity. The incidence of fetal complications was about 4.13%: intrauterine growth restriction followed by fetal malformations and umbilical cord prolapse being the most frequent was found.

5. Discussions

The problems associated with multiple births are not limited to any single country. Multiple births represent an issue worldwide primarily due to assisted reproductive technologies for infertile couples [14]. This subject is widely discussed in a variety of scientific journals, because of the high importance of maternal and infants health [5], [15].

A prospective multicenter observational study of multiple pregnancy in Ireland (ESPRit Study), reported the high incidence of prematurity in case of multiple births and how premature birth can be prevented [7], [9]. The medical interventions known to reduce the risk of preterm delivery in singletons (cervical cerclage, progesterone and tocolytic therapy) have been also studied in multiple pregnancy [4], [11], [19], [21].

A similar study included demographic data, neonatal and maternal outcome and complications of pregnancy. The conclusions of the study pointed out that the average birth weight was 2,100 grams, respectively 2,040 grams. The average gestation age for twin deliveries occurred in the 35th week (representing an incidence of 75%), with an incidence of 75%. Other

maternal complications included anemia, premature rupture of membrane, or pregnancy induced hypertension [14].

Another study identified a number of 161 multiple pregnancies with the overall incidence of 37.1 per 1.000 births (3.2%) during the study period. The four leading maternal adverse outcomes were anemia (74.6%), preterm delivery (31%), pregnancy - induced hypertension (30%) and preterm premature rupture of membranes (26.2%). Median gestational age at delivery was 37 weeks. Most common route of delivery was caesarean section (53.3%). Prematurity and low birth weight were identified as the most common cause of neonatal death [18].

6. Conclusions

Multiple pregnancy is considered to be unfavorable because of the poor neonatal outcome, maternal complications, possible long-term developmental problems and high costs. The reduction of perinatal mortality in multiple births may be achieved by early diagnosis, better antenatal care, early detection of complications and steroid administration for lung maturity.

This study concludes that multiple pregnancy is an issue in Romanian hospitals because of the maternal and fetal complications that can occur at any time of the pregnancy with great difficulty in preventing them. Early detection of high risk cases, antenatal consultations and early hospitalization with good neonatal follow up may improve maternal and neonatal outcomes.

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