

The Impact of Assisted Reproductive Technology (Art), to the Increasing Incidence of the High Order Multiple Pregnancies

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Abstract

Aim: The purpose of this research is to determine the incidence of high order multiple pregnancies in Kosovo, and the impact of assisted reproductive technology in the growth of this incidence.

Material and Methods: We conducted a retrospective analysis of database for births during 10 years (2003-2013), in Obstetrics and Gynecology Clinic/University Clinical Centre of Kosovo. The focus of this research is to determine the incidence of high order multiple pregnancies in Kosovo, that represented from triplet pregnancies.

Maternal characteristics such as: average maternal age, average gestational age, the average weight at births and mode of delivery, were recorded. Are also recorded and: method of conception, and Apgar test scoring. Statistical analysis was performed using the computer prog for statistics. Sum tests were used to compare differences in categorical variables. Number of all women who had births during 2 years (2003 and 2013) was used to compute rates for this study.

Results: From 10,286 the realized births in GOC during 2013, 97.22% (n=10,000) were singleton pregnancies, 2.78% (n=286) multiple pregnancies, of these 2.63% (n=270) twins, 0.15% (n=16) triplet pregnancy, there was not quadruplet pregnancy.

The focus of this research is to determine the incidence of high order multiple pregnancies in Kosovo, that represented from triplet pregnancies. By the method of conception: 50% (n=8) were triplets pregnancies that are realized by the use of ART, while 50% (n=8) with spontaneous conception (due to unsafe system of reporting in the latter group are introduced triplet pregnancies realized by the use of medications for ovulations). The average maternal age with triplet pregnancies resulted to be 33.3 years old, while the average gestational age at birth was 31.9 weeks pregnant, although 12.5% were born before gestational week 28, 25% before 32 weeks, 62.5% were born in the middle of the week 32-35 gestation. From 16 triplets pregnancies: 87.5% the born with caesarean delivery, 12.5% vaginal delivery (vaginal delivery were emergency, with pregnant age \leq 25 gestational weeks and weight \leq 700 g). Average weight at births of all triplets was 1775.4 g, where 27.08% are born with less than 1500 g, 58.34% \leq 2500 g, and 14.58% \geq 2500 g. The Apgar test scoring for all triplets was between 5 and 6. All these results were compared with data from 2003 (the year that officially started ART in Kosovo) where the 11,065 births in GOC the realized during 2003, 98.2% (n=10,856) were singleton pregnancies, 1.88% (n=209) multiple pregnancies, of these 1.86% (n=206) twins, 0.02% (n=3) triplet pregnancies, there was not quadruplet pregnancy. From total of three triplet pregnancy: 1 was realized with the use of ART, 2 others with spontaneous conception. The average maternal age with triplet pregnancies was 29.3 years old, while the average gestational age at birth was 31.9 weeks pregnant. From 3 triplet pregnancies: 66.7% the born with caesarean delivery, 33.3% with vaginal delivery. The birth weight averages of all triplets was 1422 g, the Apgar test scoring for all triplets was between 4 and 5.

Conclusions: From this study resulted that the incidence of high order multiple pregnancies represented by triplets pregnancies in Kosovo during 2013 was 0.15% or in ratio 155.5 triplets for 100,000 births. This incidence was increased to 50% more by the use of assisted reproduction technology for conception. It is observed that the increase of the high order multiple pregnancies also affects old maternal age.

Low weight at birth, and early gestational age of birth of these triplet pregnancy, affect the increased of perinatal morbidity and mortality from complications of fetal prematurity. When it became comparison between year 2003 and year 2013, a time interval of 10 years turned out that the incidence of triplet pregnancies, is increased to 5.7 times more.

Keywords: Multiple pregnancy; Incidence; Assisted reproductive technology; Average maternal age

Introduction

As in many world countries, even in Kosovo, more women in old age for reproduction are trying to get pregnant.

Socio-economic changes that have occurred in the last decade have led to the postponement of pregnancy for older mothers, increasing significantly the demand for infertility treatment (with various forms of assisted reproductive technology-ART).

Treatment of infertility with the use of ART except advantages, has implicated a number of health complications, as well as a variety of psychological problems, social and financial.

Increased maternal age, and infertility treatment with ART of have increased significantly the incidence of multiple pregnancy of the high order, that these can often associated with major health complications.

Aim

The purpose of this research is to determine the incidence of high order multiple pregnancies in Kosovo, and the impact of assisted reproductive technology in the growth of this incidence.

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Received March 17, 2015; **Accepted** June 30, 2015; **Published** July 07, 2015

Citation: Gashi AM, Fetiu S, Ramosaj M (2015) The Impact of Assisted Reproductive Technology (Art), to the Increasing Incidence of the High Order Multiple Pregnancies. Gynecol Obstet (Sunnyvale) 5: 302. doi:10.4172/2161-0932.1000302

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Material and Methods

We conducted a retrospective analysis of database for births during 10 years (2003-2013), in Obstetrics and Gynecology Clinic/University Clinical Centre of Kosovo.

The focus of this research is to determine the incidence of high order multiple pregnancies in Kosovo, that represented from triplet pregnancies (Figure 1).

Maternal characteristics such as: average maternal age, average gestational age, the average weight at births and mode of delivery, were recorded.

Are also recorded and: method of conception, and Apgar test scoring.

Statistical analysis was performed using the computer prog for statistics.

Sum tests were used to compare differences in categorical variables.

Number of all women who had births during 2 years (2003 and 2013), was used to compute rates for this study.

Results

From 10,286 the realized births in GOC during 2013, 97.22% (n=10,000) were singleton pregnancies, 2.78% (n=286) multiple pregnancies, of these 2.63% (n=270) twins, 0.15% (n=16) triplet pregnancy, there was not quadruplet pregnancy.

The focus of this research is to determine the incidence of high order multiple pregnancies in Kosovo, that represented from triplet pregnancies.

By the method of conception: 50% (n=8) were triplets pregnancies that are realized by the use of ART, while 50% (n=8) with spontaneous conception (due to unsafe system of reporting in the latter group are introduced triplet pregnancies realized by the use of medications for ovulations).

The average maternal age with triplet pregnancies resulted to be 33.3 years old (SD=6.52 years old), while the average gestational age at birth was 31.9 weeks pregnant (SD=3.44 weeks), although 12.5% were born before gestational week 28, 25% before 32 weeks, 62.5% were born in the middle of the week 32-35 gestation.

From 16 triplets pregnancies: 87.5% the born with caesarean delivery, 12.5% vaginal delivery (vaginal delivery were emergency, with pregnant age \leq 25 gestational weeks and weight \leq 700 g).

Average weight at births of all triplets was 1775.4 g (SD=663.6 g), where 27.08% are born with less than 1500 g, 58.34% \leq 2500 g, and 14.58% \geq 2500 g. The Apgar test scoring for all triplets was between 5 and 6.

All these results were compared with data from 2003 (the year that officially started ART in Kosovo) where the 11,065 births in GOC the realized during 2003, 98.2% (n=10,856) were singleton pregnancies, 1.88% (n=209) multiple pregnancies, of these 1.86% (n=206) twins, 0.02% (n=3) triplet pregnancies, there was not quadruplet pregnancy.

From total of three triplet pregnancy: 1 (33.3%) was realized with the use of ART, 2 (66.6%) others with spontaneous conception.

The average maternal age with triplet pregnancies was 29.3 years old, while the average gestational age at birth was 31.9 weeks pregnant.

From 3 triplet pregnancies: 66.6% the born with caesarean delivery,

33.3% with vaginal delivery. The birth weight averages of all triplets was 1422 g, the Apgar test scoring for all triplets was between 4 and 5 (Tables 1 and 2).

Discussions

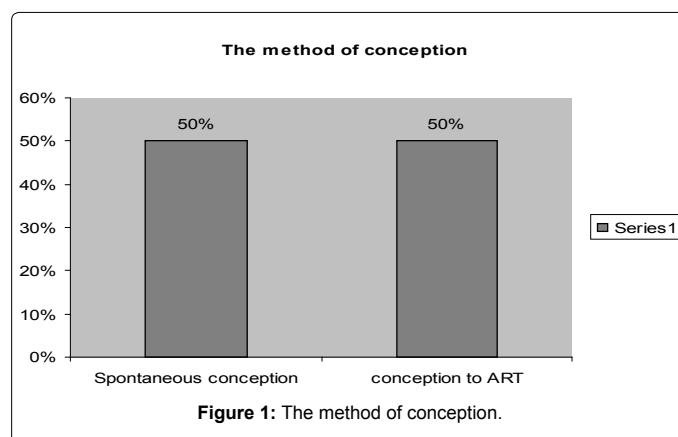
The incidence of high order multiple pregnancies represented by triplets pregnancies in Kosovo during 2013 was 0.15% or in ratio 155.5 triplets for 100,000 births. This incidence was increased to 50% more by the use of assisted reproduction technology for conception. It is observed that the increase of the high order multiple pregnancies also affects old maternal age [1,2].

Even studies of other authors, reporting generally rough results.

The high incidence of multiple births in the United States is a consequence of advanced maternal age at delivery and fertility treatments.

The contribution of ART to multiple births increased substantially with maternal age, from 11.6% for triplet/+ infants born to women aged 20 to 24 to 92.8% for women aged 45 to 49 years [3].

Studies also suggest that women who have conceived with assisted reproductive technology are more likely to undergo elective cesarean section, resulting in deliveries that occur earlier than those following spontaneous pregnancies [4-7]. In Kosovo during 2013 were 87.5



Pregnancy	The number of births	Percentage	Significance level
Singleton pregnancy	10.000	97.22 %	P < .0001 95% CI of observed proportion 96.88 to 97.53
Twins	270	2.78 %	P < .0001 95% CI of observed proportion 2.47 to 3.12
Triplet pregnancy	16	0.15 %	P < .0001 95% CI of observed proportion 0.08 to 0.25

Table 1: Type of pregnancies, the number of births, and percentage in G.O.C Pristine during year 2013.

Year	The total number of births	The number of triplet pregnancies	Percentage	The ratio triplets 100 000/ east	Percentage of triplets from spontaneous conception	Percentage of triplets from using ART
2003	11065	3	0.02 %	27.11	66.7 %	33.3 %
2013	10286	16	0.15 %	155.5	50 % *	50 %

*This percentage represents the group of women who got pregnant from the use of medications for ovulation. They are involved in this group due to unsafe system of reporting.

Table 2: Triplet pregnancies by years 2003 and 2013.

percent the born with caesarean delivery, 12.5 percent vaginal delivery [1].

Low weight at birth, and early gestational age of birth of these triplet pregnancy, affect the increased of perinatal morbidity and mortality from complications of fetal prematurity [1,2].

Multiple births are associated with an increased health risk for both mothers and infants [8-11]. Infants born in a multiple-birth delivery are at increased risk for prematurity, low birth weight, infant mortality, and long-term disability [12,13].

Conclusions

From this study resulted that the incidence of high order multiple pregnancies represented by triplets pregnancies in Kosovo during 2013 was 0.15% or in ratio 155.5 triplets for 100,000 births. This incidence was increased to 50% more by the use of assisted reproduction technology for conception.

It is observed that the increase of the high order multiple pregnancies also affects old maternal age.

Low weight at birth, and early gestational age of birth of these triplet pregnancy, affect the increased of perinatal morbidity and mortality from complications of fetal prematurity.

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