

Perinatal outcome analysis of twin pregnancies at the Department of Obstetrics and Gynecology Central Clinical Hospital of Ministry of Interior and Administration in Warsaw in the years 2005-2006

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Abstract: A group of 59 twin pregnant women who gave birth at the Department of Obstetrics and Gynecology Central Clinical Hospital of Ministry of Interior and Administration in Warsaw in the years 2005-2006. The patients have been divided into four groups: spontaneous twin pregnant women (n=16), twin pregnant women after *in vitro* fertilization (IVF) (n=11), twin pregnant women after *in vitro* fertilization with intracytoplasmic sperm injection (ICSI) (n=29) and twin pregnant women after ICSI and transfer of frozen embryos (n=3). In one case intrauterine death of one of twins in the 34th week of gestation has been noticed. The cause of the death was umbilical cord wrapped around his neck. The gestation was ended with cesarean section and Apgar score of the second twin was 8 in the fifth minute. In one case there was an urgent indication for a cesarean delivery of children with a very low birth weight (because of intrauterine infection, preterm labor in progress) and in three cases at least one of twins with a low birth weight. Among the group 19 women (32%) have given birth prematurely. The Apgar score in the first, third and fifth minute has been statistically significant and inversely proportional dependent only on the gestational age. There were no differences in birth weight among study groups regardless the way of conception. Only two spontaneous twin pregnant patients have had a vaginal labor. By the remaining 57 patients there has been an elective cesarean section in thirty five cases and there has been an urgent indication for cesarean section in twenty two cases.

Key words: Twin pregnancies - Assisted reproduction - Embryo transfer - IVF - ICSI

Introduction

The assisted reproduction techniques are more commonly use with increasing number of couple infertility and advanced technology.

The standard procedure in ET (embryo transfer) is transfer of two embryos what escalate the risk of multiple pregnancy. We have analysed the perinatal outcomes of spontaneous twin pregnancies and in-vitro fertilization pregnancies with embryo transfer (IVF-ET) and *in vitro* fertilization with intracytoplasmic sperm injection (ICSI) delivered in years 2005-2006 at

the Department of Obstetrics and Gynecology Central Clinical Hospital of Ministry of Interior and Administration in Warsaw.

Materials and methods

Retrospectively, according to the medical records a group of 59 pregnant women with spontaneous twins and women with twins after IVF-ET and ICSI who gave birth at Dept. Ob/Gyn Central Clinic Hospital of Ministry of Interior and Administration in Warsaw from 01.01.2005 to 31.12.2006 have been analysed.

The patients have been divided into four groups: spontaneous twin pregnant women (group 1), twin pregnant women after IVF-ET (group 2), twin pregnant women after IVF-ICSI (group 3) and twin pregnant women after IVF-ICSI and transfer of frozen embryos (group 4).

The investigation groups of patients have been analysed according to following clinical data: age, parity, fertility, gesta-

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Table 1. The clinical data of patients.

| Clinical data | Group 1 n=16 | Group 2 n=11 | Group 3 n=29 | Group 4 n=3 | p |
|--|-----------------|-----------------|-----------------|----------------|----|
| Age (in years) | 30.1 ± 5.5 | 34.3 ± 3.7 | 32.3 ± 4.2 | 36.0 ± 1.0 | ns |
| Fertility | 1.9 ± 0.9 | 1.6 ± 0.9 | 1.3 ± 0.8 | 1.7 ± 0.6 | ns |
| Parity | 1.5 ± 0.8 | 1.3 ± 0.6 | 1.1 ± 0.3 | 1.7 ± 0.6 | ns |
| Birth weight of newborns (in grams) | 2530.9 ± 544 | 2515.5 ± 363.2 | 2575 ± 547.4 | 2860 ± 266 | ns |

ns - not significant p value

tional age, mode of delivery, indications for cesarean section, Apgar score and birth weight.

The statistical analysis has been carried out with the statistical program Statistica 6.0, with the use of t-Student test for independent variable, after checking the homogeneity of variations. The value $p < 0.05$ is considered as statically significant.

Outcomes and their description

Table 1 depicts the clinical data of investigated patients.

On the basis of statistical analysis it has been proved that all investigation groups have been homogeneous as far as age, fertility and parity is concerned.

There were no statistical differences in birth weight among study groups regardless the way of conception.

Expecting the differences in Apgar score depending on gestational age of delivery the health status of the babies has been analysed.

The Apgar score in the first, third and fifth minute has been statistically significant and inversely proportional dependent only on the gestational age.

In one case intrauterine death of one of twins in the 34th week of gestation has been noticed. The cause of the death was umbilical cord wrapped around his neck. The gestation was ended with cesarean section and Apgar score of the second twin was 8 in the fifth minute. In one case there was an urgent indication for a cesarean delivery of children with a very low birth weight (because of intrauterine infection preterm labor in progress) and in three cases at least one of twins with a low birth weight.

Among the group 19 women (32%) have given birth prematurely, *i.e.* before the end of the 36th week of gestation, ten out of it (17%) before the end of 35th week of gestation. The percentage of preterm deliveries among the group of spontaneous twin pregnant patients accounted for 31.3%, among the group of IVF patients - 32.5%. Only two spontaneous twin pregnant patients have had a vaginal labor. By the remaining 57 patients (96.6%) there has been an elective cesarean section in thirty five cases and there has been an urgent indication for cesarean section in twenty two cases.

Table 2. Apgar score depending on gestational age.

| Apgar score | Gestational age (in weeks) | | |
|-------------|----------------------------|-----------------|-----------------|
| | 27 – 34 n=10 | 34 – 37 n=40 | 37 – 40 n=9 |
| 1 min. | 7.9 ± 1.9 | 9.2 ± 1.6* | 9.9 ± 0.3**/*** |
| 3 min. | 7.8 ± 2.2 | 9.5 ± 1.3* | 10.0 ± 0.0 |
| 5 min. | 7.8 ± 2.2 | 9.7 ± 1.0** | 10.0 ± 0.0 * |

Probability in relation to the preceding value: * $p < 0.001$, ** $p < 0.0005$, *** $p < 0.01$.

The urgent indication for cesarean section was an imminent intrauterine asphyxia of one or both fetuses ($n=6$, *i.e.* 10.5%), premature rupture of membranes (PROM) with no labor progress ($n=9$, *i.e.* 15.8%), the imminent intrauterine fetus infection ($n=4$, *i.e.* 7%), in one case the imminent eclampsia (1.8%), in one case the intrauterine death of one fetus (1.8%), in one case placenta abruption (1.8%). The indication for elective cesarean section was status post in-vitro fertilization (IVF, ICSI) ($n=22$, *i.e.* 38.5%), abnormal position of the first or both fetuses by primipara ($n=10$, *i.e.* 17.5%), burdened obstetrical history ($n=3$, *i.e.* 5.3%).

Discussion

The main conclusion drawn from this work is that Apgar score in the first, third and fifth minute has been statistically significant and inversely proportional dependent only on the gestational age. No differences in average birth weight regardless of the way of conception have been noticed.

Similarly, Ombelet *et al.* [2] suggest in their work aiming at comparing the perinatal outcomes in spontaneous pregnancies and IVF pregnancies, both singleton and twin, have not found any statistically significant differences in investigated parameters (gestation age, birth weight, Apgar score, perinatal death, congenital defect) between the investigation group (sin-

gleton and twin pregnancies after IVF) and the control group (spontaneous pregnancies).

On the other hand Halliday [3] indicates in his publication that in cases of twin IVF pregnancies preterm deliveries, low birth weight and other obstetrical complications are observed more frequently than in cases of spontaneous twin pregnancies. Similarly, Saygan-Karamursel B. *et al.* [4] suggest that the perinatal outcomes (birth weight, gestation age, perinatal mortality rate, incidence of congenital defects and percentage of cesarean sections) are less optimal in the group of twin pregnancies after IVF-ICSI than in the group of spontaneous pregnancies.

As far as the incidence of preterm deliveries is concerned Halliday indicates their 40% growth in the group of twin pregnancies after IVF in relation to the group of spontaneous twin pregnancies.

Verstraelen *et al.* [5] notice the increased risk of preterm delivery by twin pregnant patients with pregnancies after IVF in relation to the spontaneous twin patients.

We do not observe such a relation in our study - the percentage of preterm deliveries by twin pregnant

patients after IVF and ISCI accounted for 32.5%, by spontaneous twin pregnant patients - 31.25% with no statistical differences.

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