Introduction

Multiple pregnancies are associated with a higher rate of complications than single or bigemine ones, most related to the increased frequency of premature delivery and low birth weight. Maternal morbidity is very high, and neonatal morbidity and mortality too. We talk about "selective feticide" when the choice of sacrificing an embryo is given by the presence of a fetus with chromosomal or structural abnormalities, while "embryo-reduction" is when the reduction of one or more embryos is performed in order to decrease the risk of preterm delivery and other complications.

Many authors report that in multiple pregnancies the embryo-reduction (ER) is associated with a reduction in perinatal mortality. Some studies comparing reduced embryo-triplet pregnancies with expectant management pregnancies, report a neonatal survival rate similar in both groups, with an increased risk of fetal loss within a few weeks after the procedure.

Objective

In this multicenter study, we evaluated the incidence of complications among triplet pregnancies after embryo-reduction or expectant management. The aim of the study is to assess the impact of embryo-reduction (ER) in reducing the risk of miscarriage and premature birth of trichorionic triplets pregnancies.

Methods

This is a prospective observational study of 107 trichorionic triplet pregnancies. Patients were recruited at the Prenatal Diagnosis Center of Piero Palagi Hospital in Florence (Center A) in the period between January 2009 and December 2013, and at the Fetal Medicine Unit of Careggi University Hospital in Florence (Center B) between January 2007 and December 2013. All couples underwent counselling about expectant management, or ER; given the lack of scientific evidence, the decision depended exclusively on their preference. All ERs were performed with transabdominal technique as outpatient surgery procedure. Ultrasound evaluation was performed (Voluson E8 Expert GE Healthcare, Milwaukee, USA) with 3D convex probe (Rub4-8-D,GE Healthcare, Milwaukee, USA), to evaluate fetal situation, chorioniocytiyplacental localization, in order to choose the fetus to suppress. After disinfection of the abdominal skin with iodine solution, a blunt 20 Gauge - 11 cm long needle (Chiba, Quinke, Sterylab Italy) was introduced under ultrasound guidance in the fetal pericardial area, with injection of 2 ml of potassium chloride to 15%, monitoring the fetus until reaching asystole. Miscarriage was defined as the loss of pregnancy before 24 weeks of gestational age, while preterm birth birth was defined the birth of fetuses before 32 weeks of gestation; mean gestational age at birth was calculated for both groups. The number of survivors fetuses in each group was calculated. Statistical analysis was performed with StatPlus (AnalyistSoft, London, UK), statistical significance was assumed for p-value <0.05.

Results

72 of 107 patients (67.3%) enrolled in this study opted for expectant management (group A), while 27 of 107 (25.2%) underwent ER; in 8/107 (7.5%) the ultrasound scan in the first trimester (10-12 weeks) revealed a spontaneous reduction to bichorionic twin pregnancy. Among the patients who chose expectant management (group 1) 6/72 (8.3%) achieved pregnancy spontaneously, 7/72 (9.7%) following first level PMA techniques, and 59/72 (82.0 %) following second level PMA techniques. Among the patients who have opted for the ER (group 2) no spontaneous pregnancy were reported, while 7/35 (20.0%) patients following first level PMA techniques, and 28/35 (80.0%) following second level PMA techniques.

The mean age at conception was 38.6 (30-57) years in group 1 and 37.6 (23-52) years in group 2 (p = 0.668). The percentage of abortions in our population was 6/72 (8.3%) in group 1 and 3/35 (8.5%) in group 2 (p = 1.000). The rate of preterm delivery was 27/2 (37.5%) in group 1 and 33/35 (8.5%) in group 2 (p < 0.005). The mean gestational age at delivery was 31.8 (24.9-35.6) weeks in group 1 and 35.6 (27.0-40.0) weeks in group 2 (p = 0.553). The number of live fetuses at the end of the study was 195/216 (90.3%) in group 1 and 161/70 (87.1%) in group 2 (p <0.001). The number of live fetuses at the end of the study was 195/216 (90.3%) in group 1 and 161/70 (87.1%) in Group 2 (p = 0.508).

<table>
<thead>
<tr>
<th>Group</th>
<th>Media ± SD (range) gr.</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Group 1</td>
<td>24±1-26±6 weeks</td>
<td>847.1 ± 169.5 (660 - 1210)</td>
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<tr>
<td></td>
<td>29±0-31±6 weeks</td>
<td>1301.8 ± 237.0 (670 - 1870)</td>
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<td>&gt;32 weeks</td>
<td>1801.4 ± 379.3 (800 - 2850)</td>
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Table 1. Birth weight for gestational age of trichorionic triplet pregnancies managed expectantly or reduced to twins at 12 (10–14) weeks

Conclusion

Although there are no randomized studies in this regard, the data of this study are consistent with the international literature on the fact that the ER is associated with prolongation of pregnancy and the increase in mean birth weight, which does not seem to have substantial clinical implications.

References