

**Session title:** Female fertility

**Session type:** Poster viewing session

**Presentation number:** P-312

## Abstract title:

Use of granulocyte colony-stimulating factor during an assisted reproductive treatment does not increase the risk of birth defects

M. Cruz<sup>1</sup>, D. Alecsandru<sup>2</sup>, J. García-Velasco<sup>3</sup>, A. Requena<sup>3</sup>.

<sup>1</sup>IVI Madrid, IVF Lab, Madrid, Spain.

<sup>2</sup>IVI Madrid, Immunology, Madrid, Spain.

<sup>3</sup>IVI Madrid, Reproductive Medicine, Madrid, Spain.

### Study question:

To assess the effect of administration of granulocyte colony-stimulating factor (G-CSF) in newborns resulting from an assisted reproductive treatment.

### Summary answer:

Administration of G-CSF during the first steps of pregnancy does not imply a higher risk of perinatal complications or malformations in offspring

### What is known already:

G-CSF illustrates the scope of reproductive immunology, as they act on reproductive function at different levels such ovulation, embryo implantation and embryo development. Despite their growing interest in the reproductive field, actions of G-CSF have still not been explained concerning its effects on the early stages of embryo development. Information available up to date indicates that administration of G-CSF is safe in terms of risk of perinatal complications on offspring, although further studies are needed to show the harmlessness of this drug in newborns.

### Study design, size, duration:

Retrospective study performed in 11 private clinics belonging to IVI-RMA group from January 2014 to December 2016. Our study group included 33 live-born children from a pregnancy in which G-CSF was administered compared to the control group, which contained 3798 children from couples also undergoing an assisted reproductive treatment in the same clinics and in whose pregnancy this drug was not ordered. Couples were called a month after delivery date to obtain perinatal information.

### Participants/materials, setting, methods:

G-CSF is essential in the utero-placental cytokine network needed to establish and maintain pregnancy. Patients with KIR-HLA-C mismatch and recurrent miscarriage as the study group were treated as off label and after a signed informed consent, with a daily subcutaneous administration of 13 mUI of filgrastim (Neupogen, Amgen, USA) from the embryo transfer until the end of the ninth week of pregnancy. Statistical analysis was performed by ANOVA and Chi-squared where applicable.

### Main results and the role of chance:

There were no statistical differences in mother's age ( $40.9 \pm 0.1$  vs.  $38.9 \pm 1.8$ ,  $p = 0.055$ ), body mass index ( $23.2 \pm 0.2$  vs.  $22.6 \pm 1.5$ ,  $p = 0.503$ ), children's weight ( $2952 \pm 200$  g vs.  $3145 \pm 270$  g,  $p = 0.184$ ), gestational age ( $38 \pm 1$  w vs.  $37 \pm 1$  w,  $p = 0.926$ ) and length ( $50.7 \pm 2.1$  cm vs.  $50.0 \pm 1.3$  cm,  $p = 0.969$ ) between control group and women treated with G-CSF respectively. According prematurity rate, we did not also observe relevant variances in the percentage of births before week 36 (10.0% vs. 9.5%,  $p = 0.783$ ) and week 32 (2.2% vs. 0.0%,  $p = 0.585$ ) for the control and the study group respectively. Finally, we also analyzed the percentage of children under 2500 g (19.6% vs. 11.8%,  $p = 0.570$ ) and under 1500 g (2.5% vs. 0.0%,  $p = 0.454$ ) and as the previous data, we did not find significant differences for non-treated and filgrastim treated women.

According adverse perinatal outcomes, we did not find any birth defect in children included in the study group compared to a 2.1% of children affected by some congenital anomaly.

**Limitations, reasons for caution:**

A limitation of our study is the small sample size, which makes difficult to draw conclusive results. Moreover, a consequence of a retrospective study is that not all pertinent risk factors are likely to have been identified and subsequently recorded. Therefore, only association can be inferred from the results.

**Wider implications of the findings:**

The above analysis of the effect of G-CSF of *in vitro* fertilization perinatal outcomes in infertile women suggest the safety of G-CSF use in pregnancy, as no neonates complications have been observed. Even though, this treatment should be used carefully.

**Trial registration number:**

Not applicable

**Keywords:**

filgrastim

live birth

birth defects