

## Natural Pregnancy vs. After Assisted Reproduction treatment Pregnancy, is there a Difference in the Results of the First Quarter Prenatal Screen?

M Mercedes Calero Ruiz\*, Fernando Hernández Pacho and Marta Rico Rodriguez

UGC, Clinical Analysis, H.U. Puerta Del Mar, Cádiz, Spain

\*Corresponding author: Ruiz MMC, UGC. Clinical Analysis, H.U. Puerta Del Mar. Cádiz, Spain, Tel: +34636797997; E-mail: mariam.calero.sspa@juntadeandalucia.es

Received date: May 24, 2017; Accepted date: August 04, 2017; Published date: August 14, 2017

Copyright: © 2017 Ruiz MMC, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Introduction

In the present obstetric care, prenatal diagnosis of chromosomal anomalies is a priority. Separate mention deserves the pregnancies obtained after the application of techniques of assisted reproduction (IVF / ICSI), with the controversy as to if these they carry an increase of malformations, chromosomal abnormalities, etc [1-3].

### Objective

To study if there are significant differences in the prenatal screening of pregnancies obtained after IVF / ICSI with respect to natural pregnancies.

### Material and method

The results of all prenatal screening performed during the year 2016 are collected in our Unit through an Omnium consultation assistant.

The levels of free B-hcg and Pappa are performed between the 8-10 week of gestation while the measurement of nuchal translucency (TN) is carried out at week 12-13 of pregnancy. The biochemical markers were performed by electrochemiluminescence on the cobas 6000 analyzer from Roche Diagnostics while the calculation of multiples of the median (MoMs) and risk is performed with the SdWLab program (cutoff point 1/270).

The following demographic data were collected: age, smoking, weight, diabetes mellitus and IVF / ICSI gestation.

The statistical study was performed with SPSS 15.0 package for Windows.

As we can not assume normality of the sample for the MoMs variables (according to Kolmogorov-Smirnov test), hypothesis test is performed to compare means (Mann-Whitney U) and Fisher's test for comparison of screening results.

### Results

A total of 1382 prenatal screening tests were performed, corresponding to 84 (6.1%) to IVF / ICSI gestations and 1298 (93.9%) to natural gestations.

The results obtained are described in the Tables 1-3:

Variables	Natural pregnancies n=1298	FIV/ICSI pregnancies n=84
Weight		
Mean	67,32 ± 14,39	68,14 ± 14,77
Interval al 95%	66,53-68,10	64,94-71,35

Smoking		
Nº cases	257(19,79%)	16(19,05%)
Diabetes		
Nº cases	11(0,85%)	1(1,19%)

**Table 1:** Variables weight, smoking and diabetes in natural gestations and gestations after IVF / ICSI.

	Natural pregnancies n=1298	FIV/ICSI pregnancies N=84
MoMs B-hcg libre		
Mean	1,14 ± 0,741	2,15 ± 7,70
Interval 95%	1,10-1,19	0,46-3,85
p	>0.05	-
MoMs Pappa		
Mean	1,00 ± 0,682	2,30 ± 8,721
Interval 95%	1,16-1,26	0,38-4,21
p	>0.05	-
MoMs TN		
Mean	1,01 ± 0,383	1,22 ± 2,117
Interval 95%	0,99-1,03	0,75-1,68
p	>0.05	-

**Table 2:** Mean, interval confidence 95% y maximum-minimum MoMs in natural gestations and after IVF / ICSI gestations.

Screening results	Normal	Patologic	p
Natural Pregnancies naturales	1260(97,1%)	38(2,9%)	0.366
FIV/ICSI Pregnancies	82(97,6%)	2(2,4%)	

**Table 3:** Screening results.

### Conclusions

The possible association between congenital, malformative and chromosomal defects, and assisted reproduction treatments continues to be a controversial issue in the literature [4,5].

Our study shows that there are no significant differences in multiples of the median (biochemical and ultrasound variables) or in the rate of pathological screening, which need to be confirmed by invasive techniques. In spite of this, and due to the small number of pathological cases observed, it is advisable to extend the study in order to confirm this affirmation.

The risk calculations are performed with a previously validated computer system, with modifications of the reference charts according to our experience of more than 10 years and suitable to our reference population, as recommended by all clinical practice guidelines.

## References

1. Orlandi F, Rossi C, Allegra A, Krantz D, Hallahan T, et al. (2002) First trimester screening with free beta-hCG, PAPP-A and nuchal translucency in pregnancies conceived with assisted reproduction. *Prenat Diagn* 22: 718-721.
2. Niemimaa M, Suonpaa M, Heinonen S, Seppala M, Bloigu R, et al. (2000) Maternal serum human chorionic gonadotrophin and pregnancy-associated plasma protein A in twin pregnancies in the first trimester. *Prenat Diagn* 22:183-185.
3. Lambert-Messerlian G, Dugoff L, Vidaver J, Canick JA, Malone FD, et al. (2006) First- and second-trimester Down syndrome screening markers in pregnancies achieved through assisted reproductive technologies (ART): a FASTER trial study. *Prenat Diagn* 26: 672-678.
4. Amor DJ, Xu JX, Halliday JL, Francis I, Healy DL, et al. (2009) Pregnancies conceived using assisted reproductive technologies (ART) have low levels of pregnancy-associated plasma protein-A (PAPP-A) leading to a high rate of false-positive results in first trimester screening for Down syndrome. *Hum Reprod* 24: 1330-1338.
5. Bellver J, Lara C, Soares SR, Ramirez A, Pellicer A, et al. (2005) First trimester biochemical screening for Down's syndrome in singleton pregnancies conceived by assisted reproduction. *Hum Reprod* 20: 2623-2627.