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Vitamin D levels in oocyte donors are not predictive of reproductive success in egg donation treatments

Lydia Luque, Pino Navarro, Jaime Guerrero, Ana María Fabregat, Joaquin Llacer, Rafael Bernabeu

Instituto Bernabeu, Alicante, Spain

Introduction: Vitamin D deficiency is very common in the general population. The pleiotropic effects of 25OH-D are becoming a matter of concern given that the receptors are present in all nucleated cells of the body such as the ovaries and endometrium.

Some published studies show conflicting results about the relationship between the D vitamin levels and outcomes of the fertility treatments.

Methods: We present a prospective study where the levels of 25OH-D in follicular fluid (FF) and blood were assessed from 162 Caucasian donors. Three groups were established depending on 25OH-D levels in blood: Group 1 (<20 ng/ml n=30), Group 2 (20-30 ng/ml n= 82, Group 3 (≥ 30 ng/ml n=50). The primary objective was the clinical pregnancy rate in the recipients in function of the D vitamin levels in the donor. We studied other parameters like days of stimulation, number of eggs retrieved, blastocyst formation and embryo score. Bivariate correlations were assessed using Pearson's correlation coefficient. In relation to clinical pregnancy we performed a multivariate logistic regression analysis with adjustment for factors known to affect IVF success.

Results: Clinical pregnancy rate was not different between groups (G1:40%; G2:48%; G3: 50%). Differences in the characteristics of the cycles were not observed, as far as days of stimulation, or egg number. The results in the embryo evolution were similar in relation to blastocyst formation and embryo quality. A significant correlation exists between levels of 25OH-D in blood and FF ($r=0.91$; $p=0.001$).

Discussion / Conclusion: We could not find a relationship between the levels of 25OH-D and the quality of the oocytes. The influence of D-Vitamin in success rates of assisted reproduction treatments could be more linked to endometrial factors. According our results, neither the assessment of levels nor the supplementation with 25OH-D are useful in oocyte donors.