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Vitamin D status in healthy and fertile women population

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Introduction: It is well-known that vitamin D (VD) is involved in different physiological processes including fertility. Moreover, previous studies suggest that many of the studied populations show a deficit in a serum Vitamin D levels.

The aim was to know if the 25-OH-VD levels in egg donor population, who live in an area of high sun exposure, are normal or deficient. Additionally, we studied whether the body mass index (BMI), age and the season influences the vitamin D levels.

Methods: A prospective study was carried out from April to August of 2013 in 142 consenting egg donors (18-33 years old) from the Instituto Bernabeu (Alicante, Spain). The blood extraction was performed the oocyte retrieval day. 25-OH-VD serum levels were determined on an Architect analyzer (Abbott) by chemiluminescence immunoassay (CMIA).

Data were analyzed with statistical package SPSS software (version 20.0, SPSS, Inc., Chicago, IL, USA). Linear regression was applied for continuous variables. A $p < 0.05$ was considered significant.

Results: After data analysis, 62.6% of egg donors studied showed deficiency in VD, considering normal levels higher than 30 ng/dL.

In our population we observed a decrease of 25-OH-VD levels according to BMI increase with statistical significance ($p < 0.05$). For each kg/m^2 that BMI increases, 25-OH-VD level decreases 0.92 ng/dL. On the other hand, no significant correlation was found between VD levels and the age.

Regarding the season, the value of VD assessed was significantly higher ($p < 0.05$) in summer time than in spring, being this increment by 2.4 ng/dL per month (IC 95%: 1.225-3.508).

Discussion / Conclusion: Our results showed that more than 50% of fertile women from Alicante area have low 25-OH-VD levels. Moreover, the concentration of VD varies depending on the BMI, as well as the blood extraction month. These results could help us to clarify the effect of VD on fertility.