



Does Vitamin D Influence the Ovarian Reserve in Infertile Women-A Short Communication

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Short Communication

Calcium homeostasis and bone density are 2 important functions of Vitamin D in human beings. To mediate its biologic functions, it utilizes Vitamin D receptors, that are present mostly in calcium regulating tissues like the bone and parathyroid glands [1]. Still finding Vitamin D receptors within the reproductive tissues like the ovary, endometrium, testis. Hypothalamus along with pituitary has stimulated the study of Vitamin D's role in human reproduction [1]. Previous studies showed that Vitamin D can change the antimullerian hormone (AMH) signaling, follicle stimulating hormone (FSH) sensitivity and progesterone (P) Production and release in human granulosa cells as per Irani M and Merhi Z [1]. Moreover, recently Chu et al 2018 carried out a systematic review and meta-analysis in women who were undergoing assisted reproduction showed that women having enough Vitamin D had >odds of getting a live birth (odds ratio 1.33) as compared to those who had deficient Vitamin D levels [2]. Hence with the presence of Vitamin D deficiency world over within women of reproductive age, it is imperative to study the effect of Vitamin D deficiency on ovarian physiology.

Based on this recent Shapiro et al. [3] conducted a retrospective analysis from their computer data to study the relationship of Vitamin D levels and parameters of ovarian reserve in a big cohort of infertile women. Since they had got an academically affiliated private fertility center where most of women presented with diminished ovarian reserve (DOR), they studied 457 women between 21 and 50yrs. They had baseline, Vitamin D, specifically 25hydroxy Vitamin D (25OH-D), AMH and FSH levels that had been measured within 90days of each other. They further divided these into 2 groups based on age (those <38yrs or ≥38yrs). To

test if 25OH-D levels were predictive of AMH levels, they created receiver operative characteristic curves, at 3 different threshold levels -0.5ng/ml, 1.0ng/ml and 5.0ng/ml. They observed that 74 women were replete while 383 women were deficient in 25OH-D, on the bases of a <20ng/ml cutoff. Although they found comparable 25-OH-D levels in both groups. Shapiro et al found that these 25-OH-D levels did not predict AMH in both age groups along with all AMH cutoffs. Further, multivariate linear regression of log transformed AMH and FSH, with 25OH-D levels that were adjusted for confounders showed there was no correlation between 25OH-D and the ovarian reserve parameters they had measured.

Though the authors admitted that in their data race and ethnicity was not available and even though it is a retrospective study this study does give important clinical data regarding Vitamin D and ovarian reserve in a very large group of infertile women who had high degree of DOR. This was emphasized by Shapiro et al. [3] that this difference that they found might be since they studied a big cohort of infertile women having DOR as compared to fertile women. Similarly, Fabris et al. [4] carried out a retrospective study where they studied the correlation between Vitamin D and ovarian reserve, ovarian stimulation response along with reproductive outcome in 851 donor oocyte cycles and did not find any correlation between Vitamin D and ovarian reserve (AMH) levels. Another retrospective study studied this correlation between Vitamin D and ovarian reserve in both ovulatory and PCOS patients in 340 patients, <40yrs in Australia and did not find any correlation after accounting for seasonal variations and Vitamin D and ovarian reserve [5]. The only prospective study which was a cross sectional study was carried out by Drakopoulos et al. [6] where 283 infertile women <42 yrs undergoing first ART cycles did not find any correlation between

Vitamin D and ovarian reserve parameters like AMH and AFC. Thus, in all these studies do indicate that there may not be a direct impact of Vitamin D and ovarian reserve parameters. More prospective studies are needed which study directly the role of Vitamin D and ovarian physiology and ovarian dysfunction are still needed, mainly in infertile women.

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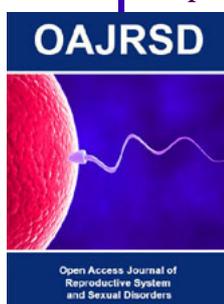
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