Original Article

Association of vitamin D status with PCOS in the unmarried females: A myth or reality

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Objective: To assess the association of vitamin D status with polycystic ovarian syndrome (PCOS) in the unmarried females.

Methodology: This case control study was done at Department of Gynecology, Railway Hospital, Riphah International University from 1st June to 30th November 2017. It included 100 PCOS patients with age 16-25 years after their consent. ELISA was utilized to measure Vitamin D level. Statistical tool SPSS version 21 was used to analyze the results.

Results: There was insignificant link between deficiency of vitamin D and PCOS. No significant difference was noted in Vitamin D Levels among PCOS and control subjects.

Conclusion: Vitamin D deficiency was prevalent among PCOS and control subjects however, no significant difference was observed in two groups. (Rawal Med J 202;46:395-396).

Keywords: Polycystic ovarian syndrome, vitamin D, infertility.

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) affected 116 million women (3.4%) globally. Vitamin D deficiency (VDD) has been reported in 90% of general population of Pakistan.[1] Vitamin D is well known for regulation of mineralization of bones, immunity, insulin secretion, cell differentiation and reproduction via its receptor and VDD results in rickets and osteomalacia.[2] A study from Islamabad reported that 57%, 43% of infants and mothers had VDD.[3,4]

PCOS is because of production of large amount androgen because of excessive luteinizing hormone (LH). PCOS expresses in 10% ladies during reproductive age and considered as highly important manifested by disturbed menses, infertility, obesity and mental stress.[5-7] Studies have suggested that vitamin D down regulates the gene of aromatase (converts the androgen into estrogen), thereby causing deficiency of aromatase in follicles of PCOS females indicating that VDD is liable for hyperandrogenism.[6,8] Aim of study was assessment of association vitamin D status with PCOS in the married females.

METHODOLOGY

This case and control study was carried out in Gynecology unit of Railway Hospital, Rawalpindi from 1st June to 30th November 2017. We included 50 healthy and 100 PCOS females after consent by Non-probability purposive sampling technique. Approval from IRB was obtained. Five ml venous blood was obtained and centrifuged and vitamin D assay was done by Elisa.

Statistical Analysis: Statistical analysis was performed using SPSS version 21. Mean and standard deviation were calculated for categorical variables at level of ≤ 0.05 as significant. ANOVA test was applied. $p<0.05$ was considered significant.

RESULTS

The table shows VDD in both PCOS and control subjects, irrespective of the fact the one group had disease and other was disease free. There was no statistically significant difference of VDD among PCOS and control subjects.

Table. Comparison of mean Vitamin D level (ug/ml) in controls and PCOS patients.

Group	Number	Mean	Std. Deviation	P-Value
Control	50	11.846	7.898	0.324
PCOS	100	10.618	5.296	

DISCUSSION

PCOS is commonest endocrine disorders affecting

10% of females causing infertility, metabolic and psychological problems resulting in misery. Our study showed VDD in both groups (11.846±7.898 ng/ml) and (10.618±5.296 ng/ml) but difference was statistically insignificant. These results do not establish any link between VDD and PCOS. These results were comparable to the findings reported by Kim et al citing no link between VDD in control and PCOS patients.[6] Chunla at el found VDD in ladies irrespective of PCOS, similar to our study.[9] Other studies have reported similar results.[10,11] A study from Shaikh Zayed Hospital, Lahore with sample size of 100 (50 PCOS and 50 without), reported VDD in 31, 16 in women with PCOS and without. According this study women with PCOS were more at risk of VDD as compared to without PCOS.[12]

The study from Islamabad had similar sample size of 150 women (100 with PCOS and 50 without) and found VDD in both groups.[4] There have been no association between BMI and VDD.[13] This result was consistent with the results of our study but we didn't measure BMI. There is difference in observations among local and international researcher regarding VDD in women with and without PCOS but none of them reported any significant association between PCOS and VDD.

CONCLUSION

In this study, there was no significant link between VDD and PCOS. Therefore, we do not recommend vitamin D supplements to improve metabolic and endocrine functions in PCOS patients.

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