TITLE - EVALUATION OF EFFECT OF VITAMIN D SUPPLEMENTATION ON SERUM AMH IN VITAMIN D DEFICIENT PCOS WOMEN

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Context - PCOS is characterized by oligo or anovulation, clinical or biochemical hyperandrogenemia, and/or polycystic ovaries on ultrasonography. Vitamin D plays a role in ovulation in PCOS.

Objective - To correlate vitamin D levels with serum AMH after vitamin D supplementation in vitamin D deficient PCOD women.

Study Design - Observational, comparative and interventional study.

Methods - A total of 630 incident cases of PCOS were enrolled after considering inclusion and exclusion criteria. Out of this, 30 patients each without (Group 1) and with vitamin D deficiency (Group 2) were selected using purposive sampling design to study the impact of vitamin D deficiency on Serum AMH levels. In the intervention group, 60,000 IU once weekly vitamin D supplementation was done for 8 weeks. After eight weeks, vitamin D and Serum AMH levels were reassessed. Data was analyzed using Statistical Package for Social Sciences Version 21.0.

Patients - All consenting females diagnosed with PCOS according to Rotterdam Criteria in the age group of 16-40 years were recruited.

Intervention - PCOS women having vitamin D (25OHD) levels (<20 ng/ml) were given oral vitamin D3: 60,000 IU once weekly for 8 weeks.

Main Outcome Measures - Change in AMH concentration after vitamin D3 supplementation. Targeted AMH concentration was <4 ng/ml.

Results - In Group 1, 23.3% women had AMH levels <4 ng/ml whereas 20.0% women in Group 2. The correlation between vitamin D and AMH levels was weak and not significant statistically (ρ=0.090; p=0.495). On evaluating this correlation

separately in Groups 1 and 2, it was found to be weak but statistically not significant (ρ=0.129; p=0.497) in Group 1 whereas in Group 2 was found to be mildly positively correlated yet statistically not significant (ρ=0.344; p=0.063). Following intervention, mean vitamin D levels changed from 12.53±4.32 ng/ml to 33.59±8.75 ng/ml, thus showing a significant change. Vitamin D levels were normalized (>20 ng/ml) in all the women. A statistically significant change in AMH levels was observed with mean values changing from 4.88±2.06 ng/ml to 3.79±2.00 ng/ml. The proportion of women with normalized AMH levels (<4 ng/ml) increased from 20% to 80% following intervention. In the vitamin D deficient group, following intervention, the correlation between vitamin D and AMH levels was weak and not significant statistically.

Conclusion - Vitamin D levels have a regularizing effect on ovarian reserves among PCOS patients with vitamin D deficiency.