

Therapeutic effects of vitamin D and calcium in patients with polycystic ovary syndrome

Rashidi B. (M.D.)¹, Haghollahi F. (M.Sc.)¹, Tehranian N. (Ph.D.)², Shariat M. (M.D., M.C.H.)¹, Zayerii F. (Ph.D.)³, Bagheri M. (M.Sc.)¹, Masoomi M. (B.Sc.)¹

1- Vali-e-Asr Reproductive Health Research Center, Tehran University of Medical Sciences, Tehran, Iran.

2- Department of Physiology, Faculty of Medical Sciences, Tarbiat Moddares University, Tehran, Iran.

3- Department of Biostatistics, Faculty of Medicine, Shahed University of Medical Sciences, Tehran, Iran.

Abstract

Introduction: Polycystic ovary syndrome (PCOS) is the most important cause of oligoovulation and anovulation in women of reproductive age and in infertile women. Considering insulin resistance and hyperinsulinemia in this syndrome, it is believed that calcium, as well as vitamin D, will have a unique role in correcting the impairment in insulin secretion and help the development of oocytes in mammals. Therefore, this study was carried out with the objectives of evaluating the effects of calcium on human ovulation and on the size of follicles in comparison with the current use of metformin.

Materials & Methods: In this research, all PCOS patients (In accordance with the Rotterdam criteria and diagnosis confirmation by a gynecologist) who attended the infertility unit of Vali-e-Asr Reproductive Health Research Center from 2004 to 2005, after expressing their willingness to participate in the research were assigned to three 20-patient treatment groups as it follows:

The cases were treated daily with: 1) Calcium/Vit. D (1000mg), 2) Calcium/Vit. D (1000mg) and metformin (1500mg) or 3) Metformin (1500mg) tablets for 3 months and were followed up for 3 more months. After this 6-month period, the size of dominant follicles, regularity of menses and pregnancy were checked for. After data collection and entry, statistical analysis (Kruskal Wallis, t-test, ANOVA and Generalized Estimating Equation (GEE) Regression) on the basis of the hypothesis, with a significance level of $p=0.05$ was performed by using SPSS software (Version 11).

Results: Considering the response to treatment by the patients (Dominant follicle $\geq 12mm$ in size), GEE showed that the response was significantly higher during the 5th-6th months in the Calcium/Vit. D and metformin treatment group than the ones from the other groups ($p= 0.03$).

Conclusion: Considering the effects of metformin in reducing and regulating insulin production, and vitamin-D in regulating and correcting serum insulin levels, simultaneous administration of these two medications is suggested for the treatment of insulin impairment and reduction of androgen levels for better oocyte maturation.

Key Words: PCOS, Calcium/Vit. D, Metformin, Insulin resistance, Calcium, Insulin, Hyperandrogenism.

Corresponding Author: Dr. Batool Rashidi, Vali-e-Asr Reproductive Health Research Center, Imam Khomeini Hospital, Keshavarz Blvd., Tehran, Iran.

E-mail: a3064@sina.tums.ac.ir