EFFECT OF ORAL AND INJECTABLE CONTRACEPTIVES ON SERUM CALCIUM, MAGNESIUM AND PHOSPHORUS IN WOMEN

ABDUL HAMEED*, TASNEEM MAJEED, SHAHID RAUF, MOHAMMAD ASHRAF, M. ASIF JALIL*, M. NASRULLAH, ALTAF HUSSAN AND ROOZEENA NOREEN*

*Frontier Medical College Abbottabad and PGMI, Lahore

Background: This study aims at evaluating serum calcium, magnesium and phosphorus levels in women taking oral and injectable contraceptives. *Methods:* Serum calcium, magnesium and phosphorus were measured in 50 women taking oral contra ptives (Lofeminal) and 50 women taking injectable contraceptive (Depo-medroxy progesterone acetate and Norigest). These women were used as controls before starting these contraceptives. *Results:* There was significant decrease in serum levels of calcium, magnesium and phosphorus in women taking oral contraceptives but there was significant increase in these minerals in women taking injectable contraceptives. ***Conclusions:*** It is suggested that these contraceptives should be used with due care and with proper investigations of the women before and during the therapy.

INTRODUCTION

The use of oral contraceptives has been shown to be associated with decrease levels of serum calcium, magnesium and phosphorus but there is increase in levels of these minerals in women taking injectable contraceptives'"[10]. The present study aims to evaluate appropriate serum calcium, magnesium and phosphorus fractions in women taking oral and injectable contraceptives, because these minerals are the subject of increasing interest mainly due to finding that they are commonly present in many metabolic processes and their change has important role in metabolic disturbances[11'12].

MATERIAL AND METHODS

Healthy Women attending the family planning units of Lahore for contraceptive advice were randomly selected for study. Groups were comprised of 50 women receiving oral contraceptives (group A), 25 women receiving injectable contraceptives (Depomedroxy progesterone acetate) (group B) and 25 women receiving injectable contraceptive (Norigest) (group C) for a period of 3-6 months. The group A was further divided into group A-l (25 women) and group A_2 (25 women). They received Lominal pills respectively for 3-6 months. Group B was also further divided into group B-l (15 women) and group B-2 (10 women) received medroxy progesterone acetate 150 mg/ml intra muscularly at 3 months' interval for 3-6 months respectively. Group C was divided into two groups, group C-I (15 women), group C-2 (10 women), received norigest 100 mg/ml deep intramuscularly 2 months' intervals for 3-6 months respectively. All the subjects were married and multipara. Age ranged between 25-45 years. Control groups were the same before starting the contraceptives. Blood samples were collected from all the cases after an overnight fast. The serum was extracted and analysed for the estimation of calcium, magnesium and phosphorus by cresophthalein complexone method, colorimetric method, and photometric molybdatevanadate method with Deproteinization respectively.

RESULTS

Statistical significance of the results was assessed by paired "T" test. Table-1 indicates that the group of women using oral contraceptives (group A) was found to have significantly lower levels of calcium, magnesium and phosphorus ($P<0.001$) than that of controls. Table-2 shows that serum levels of calcium, magnesium and phosphorus are significantly higher ($P<0.001$) than that in control women using depomedroxy progesterone acetate injection, there is also significantly higher values of serum calcium, magnesium and phosphorus ($P<0.001$) than that of controls (women using norigest injection).

DISCUSSION

Metabolic alteration and side effects of oral and injectable contraceptives are beginning to be Studied in Pakistan. In this study the changes in serum levels of calcium, magnesium and phosphorus found in women taking oral and injectable contraceptives are in conformity with the reported values of Simpson and Dale[7].

Tablc-1: Serum Calcium, Magnesium and Phosphorus in women on oral contraceptive (group A-l and group A-2). ***(Mean+S.E.M.)***

Groups	Duration of drugs (months)	Calcium (mg/dl)	Magnesium (mg/dl)	Phosphorus (mg/dl)
Control group (25)	-	9.58 ±0.12	2.24±0.05	3.65 ± 0.07
Group A-l (25)	03 months	9.27 ±.0.11**'	2.14+0.06**	3.29 ±0.08**
Group Aa	-	9.47 ±.0.01	2.22±0.07	3.64±0.04
Group A-2	06 months	9.01 + 0.09**'	2.14±0.05**'	3.1 ±0.09**

* p<0.01 and ** p<0.001 as compared with normal control groups.

Table-2: Serum calcium, magnesium and phosphorus in women on depo-medroxy progesterone acetate injection (group B-l and group B-2) ***(Mean+S.E.M.)***

Groups	Duration of drugs (months)	Calcium (mg/dl)	Magnesium (mg/dl)	Phosphorus (mg/dl)
Control group (15)	-	9.41 ±.0.15	2.15±0.06	3.76±0.08
Group B-l (15)	03 months	9.62 ± 0.15*	2.43±0.03*	4.53±0.03*
Control Group Bb (10)	-	9.60 ± 0.18	2.30±0.08	3.72±0.13
Group B-2 (10)	6 months	9.79 ± 0.17	2.44±0.04	4.59±0.10

* p<0.01 and ** p<0.001 as compared with normal control groups.

Table-3: Serum calcium, magnesium and phosphorus in women on norigest injection in group C-l and group C-2) ***(Mean+S.E.M.)***

Groups	Duration of drugs (months)	Calcium (mg/dl)	Magnesium (mg/dl)	Phosphorus (mg/dl)
Control group C (15)	-	9.54±0.19	2.22±0.19	3.81±0.31
Group C-l (15)	3 months	9.56±0.22*	2.40±0.02*	4.30±0.07**
Control Group Cc (10)	-	9.57±0.16	2.36±0.07	3.79±0.13
Group C-2 (10)	6 months	9.16±0.19*	2.56±0.06*	4.60±0.07**

*p<0.01 and ** p<0.001 as compared with normal control groups.

This data is the. first of its kind to be available in our country. Comments and comparison about the differences cannot be made with the results of other because the study of these minerals in women receiving injectable contraceptives (norigest) has not been reported by any other research worker.

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