EFFECT OF INJECTABLE CONTRACEPTIVES ON BODY MASS INDEX (BMI) IN WOMEN ATTENDING FAMILY PLANNING CLINIC AT HYDERABAD

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ABSTRACT

Objective: To see the effect of injectable contraceptives on Body Mass Index (BMI) of women.

Study Design: A descriptive study.

Place and Duration of the Study: Family Planning Clinic at Hyderabad Sindh. One year from February 2005 to February 2006.

Subjects and Methods: This study was carried out on 50 patients of reproductive age 24-35 years. Patients with Cardiac, Renal and Liver dysfunction were excluded. Diabetic women taking sedative and hypnotics, anti-tubercular treatment were also excluded. All routine investigations were performed. BMI was done on initial visit and then on each follow-up visit and data was analyzed.

Results: Fifty women were selected. They were grouped into Group A and Group B, 25 women in each group. Group A received Depo Medroxy Progesterone (DMPA) and Group B received Norethisterone Enanthate (NET-EN). On initial visit mean BMI of Group A was 23.03 ± 0.1 kg/m^2 while of Group B was 23.72 ± 0.2 kg/m^2. After completion of study mean increase in BMI of Group A was 0.52 kg/m^2 and that of Group B was 0.54 kg/m^2.

Conclusion: Mean increase in BMI of both group is negligible. Both are equally effective in relation with BMI.

Keywords: Injectiable contraceptive DMPA (Depo Medroxy Progesterone) NET EN (Norethisterone Enanthate) BMI (Body Mass Index).

INTRODUCTION

13 million women in developing world used injectable contraceptives as estimated by the United Nation Population Fund in 1991. They included 10 million users of progestogen preparation Depo Medroxy Progesterone (DMPA) having duration of action of three months. Two million women used another progestogen preparation Norethisterone Enanthate (NET-EN) having duration of action of two months. One million women used combined preparation (progestogen & estrogen) having duration of action of One month. Examples of combined preparation are:-

- Cyclofem containing 25 mg DMPA and 5mg Estradiol Cypionate.
- Mesigyna containing 50 mg NET-EN and 5mg Estradiol Valerate [1].
- DMPA & NET-EN are the only two injectable progestogens, currently available.

DMPA is an aqueous microcrystalline suspension given at a dose of 150 mg every three months. NET-EN is an oily solution administered at a dose of 200 mg every two months [2].

In our study two injectable progestogen contraceptives given and the effect of these steroids on body weight of the recipients was studied & BMI was- calculated accordingly. The reason of calculating BMI instead of weight is that BMI is the better indicator of total body fat & correlates more closely with adverse effects of excess weight than, body weight alone [3]. BMI is defined as medical standard for obesity measurement and is employed by WHO obesity statistics. It is a calculated number used to compare and

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analyze the health effect of body weight on human bodies of all heights. It was developed by Belgian Polymath Adoophe Quetlet in 1830-1850. It is calculated as follows.

BMI=Weight in Kg/Height in m^2

Ideal normal range is 18.5 to 22.9 kg/m^2 [4].

Objective of our study was to:

- Allay misperception about hormonal contraception and weight gain.
- Aid women in continuing their contraception methods.
- Improve over all women health.
- Counsel and educate the women regarding diet and exercise as these are important factors in weight management.

MATERIAL AND METHODS

This study was carried out at Family Planning Clinic at Hyderabad Sindh. Duration of study was one year (February 2005 to February 2006). We registered 50 women for injectable contraceptives.

Inclusion Criteria

- Women of reproductive age 24 to 35 years.
- Multi Para who desired for reversible long term contraception.
- Lactating mothers.

Exclusion Criteria

- Patients with hypertension & heart disease.
- Renal and hepatic dysfunction
- Diabetes mellitus
- Women on anti tuberculosis therapy
- Women on sedatives hypnotics.

Obstetrical history was taken. General and systemic examination including Gyneacological examination was performed. Baseline investigations like Blood CP, Urine DR and Random Blood Sugar was done.

Recipients were divided into two groups, Group A and Group B, 25 in each group. Group A was given injection DMPA. Group B was given Injection NET-EN.

On initial visit their height in meters and weight in Kilogram was recorded, Blood Pressure was also recorded.

Superscript recipients were advised for follow up and they were provided small cards on which the next date of visit was mentioned.

For Group A women were advised to come after every three months. Group B was advised to come after every two months.

On each visit their weight and blood pressure were recorded. BMI was calculated by formula kg/m^2. Results of both groups were compared.

STATISTICAL ANALYSIS

All above experimental group were subjected to one-way analysis of variance (ANOVA). Repeated measure and significant means was determined using student t test.

Data has been analyzed using SPSS (version 10.0). Descriptive statistics were used to describe the data. Period samples t-test was used to check the significance of difference within the group. Independent sample t-test was applied to check the difference between both the groups at different items.

RESULTS

Out of 50 women registered, 25 women of Group A were given DMPA and 25 women of Group B were given NET-EN, recipient age in both groups ranged from 24 to 35 years. Mean age of Group A was 29.55+ 4.17 while of Group B 29.97+ 4.27. (Table-1), Parity of registered women is shown in (Table-2). In Group A, height ranged from 1.45 to 1.70 m with (mean 1.55±0.12). While in group B height ranged from 1.30 to 1.72m (Mean+ SEM 1.44 ± 0.13). Both the groups were comparable with respect to age, height and parity.

On initial visit weight of the recipient belonging to Group A ranged from 40 to 70 kg, while BMI range was 18.2 to 27.7 kg/m^2 (Mean BMI 23.03±0.1) Table I11. In Group B weight range was 32.78 kg, (Mean weight 53.96±5.6) BMI range was 16.32 to 32.4 kg/m^2 (Mean BMI 23.72±0.2).

Table-3: Effect of DMPA and NET-EN on BMI of Recipient

Drugs	Mean BMI on Initial Visit	Mean BMI after 12 months	Mean Increase in BMI	P Value
DMPA	23.03 kg/m² ±0.1	23.55 kg/m² ±0.3	0.52 kg/m²	> 0.05
NET-EN	23.72 kg/m² ±0.2	24.26 kg/m² ±0.3	0.54 kg/m²	>0.05
P-values	P>0.05	P>0.03	-	-

Table-1: Age Distribution DMPA

Age in years	Group A (n=25)	Group B (n=25)
24-29	17 (68%)	15 (60%)
30-35	8 (32%)	10 (40%)
Mean+ SD	29.55+ 4.17	29.97+ 4.27

P-value >0.05

Table-2: Parity

No. of Children	Group A (n=25)	Group B (n=25)
1	4 (16%)	1 (4%)
2	9 (36%)	9 (36%)
3	6 (24%)	8 (32%)
4	5 (20%)	%
5	1 (4%)	04 %
Total	25	100 %

After completion of study Mean gain in weight was 1.50 kg while Mean increase in BMI was 0.52 kg/m² in case of Group A, while in Group B Mean weight gain was 1.24 kg while increase in BMI was 0.54 kg/m².

DISCUSSION

Obesity is now recognized as a complex condition, resulting from interaction between genetic and environmental factors. In the clinical setting, simply weight measurement is insufficient; therefore current recommended measures for obesity are Body Mass Index and waist circumferences [5]. BMI is primarily a statistical tool designed for public health study which enables the investigation & comparison of any medical data set in which the height and weights of subject were recorded, to determine whether obesity correlates with health outcomes. Normal BMI range is 18.5 kg/m² to 22.9 kg/m²,

BMI < 18 kg/m² is under weight

BMI > 30 kg/m² is obese,

Cut off values for Asian BMI for obesity is 27.5 Kg/m².4

Waist circumference provides an independent assessment of health risk because of direct relation of abdominal fat store to disease risk. Women having >35" waist circumference are at disease risk. The relative risk of disease begins to increase with increasing BMI. These include metabolic, cardiovascular & neoplastic conditions.

This study was designed to see the effect of progestogen injectable contraceptives on BMI of the women who were registered for contraception.

In our one year study average weight gain in DMPA users was 1.5 kg and increase in BMI was 0.52 kg/m², with NETEN weight gain was 1.24 kg & increase in BMI was 0.54 kg/m².

Several studies have been conducted in past regarding the effect of injectable contraceptives on weight gain and BMI of recipients.

Pharmacia Upjohn in 1999 observed the effect of only one drug that was DMPA on weight gain. In one year study weight gain was 2.5 kg which is comparatively greater than our values. Harriel et al in 1995 in his three months study on DMPA user described an increase in BMI of 0.5 kg/m² [6]. In his other study increase BMI after three months of DMPA was 0.15 kg/m² which is comparatively less than our values.

Sang et al in 1995, in his one year study compared two groups of combined injectable contraceptives, Medroxy Progesterone 25 mg & EC (Ethinyl Cypionate) 5mg with NET-EN 50 mg & EV (Ethinyl Valerate) 5mg, difference in mean weight gain was 1 kg [7].

It is due to an estrogenic effect which is responsible for increase in subcutaneous fat specially breast thighs and hips, and fluid retention due to Mineralo Corticoid activity.

Olerker et al in 1995 compared two group of combined oral contraceptives, Drospirenone 3mg + Ethinyl E2 30 µg. With Levonorgestrel 150 µg + Ethinyl E2 30 µg in 6 cycles [8]. Another study conduced by Endrikat et al in 2001 compared two groups of OCs, standard desogestrel and ethinyl E2 regimen with Prolonged gestodene and ethinyl E2 regimen in 6 cycles [9] mean weight gain in both studies was greater than 2

kg. This was the most frequent cited reason for OCs discontinuation in women. Anabolic properties of combined OCs could result in an increase in food intake due to its effect on satiety center.

Study conducted by Sule Shuittu at Zaria hospital Nigeria, found no significant weight change in clients receiving hormonal contraceptives compared with IUCD receivers. They removed misconception about the effect of the hormonal contraceptives on weight which may have negative effect of contraceptive use [10].

In our study mean increase in weight was not significant, & our aim was also to convince the ladies to continue their contraceptive methods.

CONCLUSION:

Our study reveals that there is minimal effect of Progestogenic preparation on BMI of the recipient. Weight gain is not an adverse effect of these preparations. Slight increase might be due to change in life style of the women using contraceptive. Misconception should be removed. Awareness should be promoted to continue these injectable contraceptives.

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