Irina Tica¹, V.I. Tica², Claudia Mihailov¹, A. Mitroi³

Extrapolation Of A Controversial Subject In Pregnancy And Puerperium: The Influence Of Combined Oral Contraceptive Use Over Body Mass Index And Biliary Symptoms

¹“Ovidius” University of Constanta, Faculty of General Medicine, Discipline of Medical Semiology, Clinical Port Hospital Romania

²“Ovidius” University of Constanta, Faculty of General Medicine, Discipline of Obstetrics and Gynecology, Emergency Clinical Hospital, Romania

³Clinical Port Hospital of Constanta, IInd Medical Department, Romania

ABSTRACT:

Introduction and aim: Because for the majority of women one of the most unwanted effect of combined oral contraceptive use is considered to be weight increasement, our study aim was to find out if there is a correlation between the use of combined oral contraceptives in the present or past and the body mass index in a group of pregnant, puerperal and matching control patients.

Material, patients and method: In a prospective cohort (Regional University Hospital – Constanța), 176 patients were included in 3 groups: pregnant, puerperal and matching non-pregnant women (control). For each patient a chart was considered, with the following parameters, age, height, weight, BMI, type of diet, use of combined oral contraceptives in the present or in the past (more than 6 months), ultrasound evaluation of gallbladder' content.

Conclusion: In our study, the use of combined oral contraceptives was not correlated with a high BMI but it seems to correlate with a higher incidence of biliary dyspeptic symptoms in patients without biliary sludge or stones.

Key words: oral contraceptive, body mass index, pregnancy

Introduction

For a majority of women, one of the most unwanted effect of combined oral contraceptive (COC) use is considered to be weight increasement. Along with this concern, other side effects are quoted: venous thromboembolism [1], increased risk of breast cancer. There is still controversy on this subject, more trials being necessary to evaluate the link between COC and weight change, requiring a placebo or non-hormonal group to control for other factors, including changes in weight over time [2].

On the other hand, the reverse aspect of the problem exists: the increased body weight is inducing a failure in the contraceptive effect of COC [3].

Sex hormones play essential roles in the regulation of appetite, eating behavior and energy metabolism and have been implicated in several major clinical disorders in women. Estrogen inhibits food intake, whereas progesterone and testosterone may stimulate appetite. For instance, androgens may promote bulimia by stimulating appetite and reducing impulse control, a proposal supported by the observation that antiandrogenic treatment attenuates bulimic behavior. Androgens are also involved in the pathophysiology of abdominal obesity in women. On the other hand, hormone replacement therapy with estrogen counteracts the weight gain and accumulation of abdominal fat associated with the menopausal transition. COC therapy for 6 months in

Irina Tica, MD, PhD

Faculty of General Medicine,
Railway Hospital, IInd Medical Department,
Bd. 1 May 5-7, Constanta,
Phone: 0040 241 485355,
mail: irinatrica@gmail.com

lean PCOS patients (with android aspect) resulted in an increased total and trunk fat percentage despite no change in clinical anthropometric measures including weight, BMI and waist to hip ratio (WHR).[4] In conclusion, sex hormones and/or agents that exhibit similar activities may provide novel strategies for the treatment of eating disorders and android obesity, two of the most serious health problems for women today. [5].

Material, patients and method:

Our study, type prospective cohort, included a number of 176 patients admitted in the Ist and IIrd Clinical Departments of Obstetrics and Gynecology and IInd Medical Clinic of the Clinical Emergency Hospital – Constanța.

Patients were comprised into three lots: a lot of pregnant women (130 individuals), one of puerperal women (22 individuals) and another of control (non-pregnant patients)(24 individuals).

The inclusion criteria were:

- for the pregnant group: any patient with a living fetus, admitted in one of the above mentioned departments.
- for the puerperal group: patients who gave birth to a new-born (no matter the pregnancy age, more than 28 weeks – gestational age at parturition time) no longer than six weeks ago.
- for the control group: patients admitted in the IInd Medical Department, having the same age as the pregnant and puerperal patients. These patients were hospitalized for: renal colic (examined after colic's remission), connective tissue disorders (systemic lupus erythematosus, rheumatoid arthritis, and scleroderma), hematological disorders (thrombocytopenic purpura, anemia), respiratory disorders (acute and chronic bronchitis, pneumonias) and

chronic hepatitis.

Patients were asked for written approval to be included in the study and the study's objectives and methodology were approved by the Ethical Comity for Research of the University of Constanța.

The rejection criteria:

- pregnant women with hiperemesis gravidarum (due to their symptomatology);
- patients with dyspeptic symptoms: upper gastrointestinal bleeding, painful peptic ulcer, acute pancreatitis, biliary colic, acute cholecystitis;
- patients who did not accept inclusion in the study.

A follow-up chart was realized for each patient, comprising the next parameters:

- height, weight, body index [defined as $\text{Weight (kg)} / \text{Height}^2 (\text{m}^2)$]
- weeks of amenorrhoea, respectively postpartum days
- number of pregnancies and number of births
- oral contraceptive use for at least 6 months
- biliary symptoms (nausea, biliary vomiting) during pregnancy
- in personal pathological history
- type of diet: high or low intake of animal lipids
- presence of biliary sludge or stones

The diet type was considered on the basis of an interrogatory which established the amounts of animal lipids ingested by day. These were reported to the daily requirements of calories according to each patient need (depending on height, weight, daily activity, presence of pregnancy).

A high fat diet was considered when animal lipids represented more than 30% of the daily necessary in calories and when they were improperly distributed (more than 10% saturated, 10% monounsaturated and 10% polyunsaturated fats).

The caloric ratio (CR) was measured by the formula:

$\text{CR} = \text{Ideal weight} \times \text{Necessary in kcal} / \text{kgc}$

Where: Ideal weight (kg) = $\{50 + 0,75 [\text{Height}$

(cm) – 150] + [(Age – 20)/ 4]} x 0,9

The daily required amount of kcal /kgc are:

25-30 kcal/kgc in sedentary stile

30-35 kcal/kgc in small physical efforts

35-40 kcal/kgc in mild physical efforts

>40 kcal/kgc in important physical efforts

In case of pregnancy 500 kcal/day were added.

There was no difference between patients' diet, no matter the group they belong to.

The gallbladder's content was analyzed by real time ultrasound investigation, using a 3.5 Mhz abdominal transducer and a Sonoace 8000 ultrasound system. The patients were examined in the morning, at 07 am, after a fasting period of minimum 8 hours. Ultrasound examination was performed in recumbent position, left lateral and orthostatic position, through right oblique recurrent subcostal views, sagital views under the right costal edge and through intercostals views (especially in the IIrd and IIIrd trimester of pregnancy). The ultrasound measurements were performed by the same doctor to all the patients, on the same machine.

Statistic evaluation

The data obtained as previously described were systematized in tables according to the experiment (in groups). For each parameter mathematically quantifiable the following specific values were determined: medium value and standard deviation.

In order to establish the significance of some values' modifications of the different groups we used the "t" – Student test, the " χ^2 " test and „ANOVA" Analysis of Variance, a level of significance of 95% being considered. Their utilization was imposed by the small number of determinations.

The comparison between the groups was performed using the "MS Excel 2003©" and "Matematica 3©" programmes.

The χ^2 test compared the results between two selection groups.

Results and discussions

In our study 15% of the patients from the group of pregnant women used in their past COC, 27% from the puerperal group and 25% of the patients in the control group (Figure no. 1).

Fig. no. 1. Oral Contraceptive use in the past history of pregnant and puerperal group and in the present time in the control group.

Figures no.2, 3 and 4 show the medium value of BMI in each group according to COC use. The results revealed that there was no statistical difference between the BMI of the patients who used or are using COC and of those who did not used COC any time.

More than this, even if not statistically significant, a small decrease of 2-3 units of BMI was found in the puerperal and control subgroups that used/ are using COC.

These results are similar to the ones in the medical literature, regarding the new generations of COC. [6]

Figure no. 2. BMI values repartition in the control group according to the use of COC.

Figure no. 3. BMI values repartition in the puerperal group according to the use of COC in their hystory.

Figure no. 4.. BMI values repartition in the pregnant group according to the use of COC in their hystory

We can not consider this difference to be due only to the hormonal treatment but also to the more attentive self-care of the persons using COC have in general.

Our study revealed another aspect of COC use: its association with the presence of symptoms of biliary type dyspepsia in the past of the patients who used or are using COC, but did not correlate with the presence or gallstones or biliary sludge, except for the pregnant group but with no statistical difference (Figure no. 5, 6)

Figure no 5. Biliary dyspeptic symptoms according to COC use in present or past

Figure no.6. Presence of lithiasis and sludge according to the use of COC

Conclusions:

The use of COC in the present, respectively in the past, was not correlated with a significant statistically higher BMI in control, respectively in pregnant and puerperal group

The use of COC seems to correlate with a higher incidence of biliary dyspeptic symptoms in patients who did not have biliary sludge or stones.

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