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Editorial

Obesity and Contraception: An Approach to Clinical Practice

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Editorial

Obesity is an endocrine disease with a prevalence that ranges between 1.5% and 69.1%, depending on the ethnicity and geographic region [1]. Since this disorder is associated with an increased risk for the development of Systemic Arterial Hypertension (SAH), Diabetes Mellitus Type 2 (DM2), dyslipidemia, Metabolic Syndrome (MetS), vascular thrombosis, and other risk factors for Atherosclerotic Cardiovascular Disease (ACVD) [2], obesity is a major global public health problem that requires multidisciplinary attention in clinical practice.

Approximately 30% of women of reproductive age suffer from obesity (Body Mass Index (BMI) ≥30 kg/m^2) [3] and the use of safe and effective contraceptives is fundamental to minimize risks from an unintended pregnancy, such as hypertensive syndrome in pregnancy, preeclampsia, preterm birth, gestational diabetes, and others [4].

The evaluation of the effectiveness of contraceptive methods in obese women has been limited, as women with a BMI ≥30kg/m^2 have been excluded from most studies due to the increased risk of associated comorbidities that affected their eligibility for hormonal contraceptives. A multicenter study including 3,319 women showed that the effectiveness of transdermal contraceptive patches could be reduced in women with a body weight higher than 90 kg [5], but no pharmacokinetic studies on this contraceptive method have been carried out with obese women, in order to confirm this finding. Moreover, a study on the pharmacokinetics of the vaginal ring in obese women showed no differences when compared to non-obese women, thus demonstrating the effectiveness of this method in obese women [6]. According to a meta-analysis published in the Cochrane, BMI does not seem to interfere with the effectiveness of contraceptive methods; but the evidence was weak and did not allow for evaluating individual contraceptive methods due to the scarcity of studies [7].

According to the World Health Organization (WHO) [8] and the Center for Disease Control and Prevention (CDC) [9], any hormonal contraceptive method may be prescribed for women suffering from isolated obesity, regardless of their BMI. However, the prescription of hormonal contraceptives for obese women demands caution due to its association of obesity with comorbidities that are rated category 3 or 4 (Figure 1) for prescription of Combined Hormonal Contraceptives (CHCs), such as DM2 and cardiovascular disease, SAH, and MetS.

In the presence of risk factors for ACVD, the use of Progestogen-Only Contraceptives (POCs) and copper Intrauterine Device (IUD) may be safe and effective. In particular, Long-Acting Reversible Contraceptive (LARC) methods [etonorgestrel implant, Copper IUD, and Levonorgestrel-Releasing Intrauterine System (LNG-IUS)] [8] offer greater contraceptive efficacy and higher continuity rates when compared to other hormonal methods. According to the CHOICE trial, an American cohort study that included more than 10,000 women, the continuity rate was 88%, 84%, and 83% a year after Copper IUD insertion, LNG-IUS insertion, and etonorgestrel implant, respectively, while the discontinuation rate ranged from

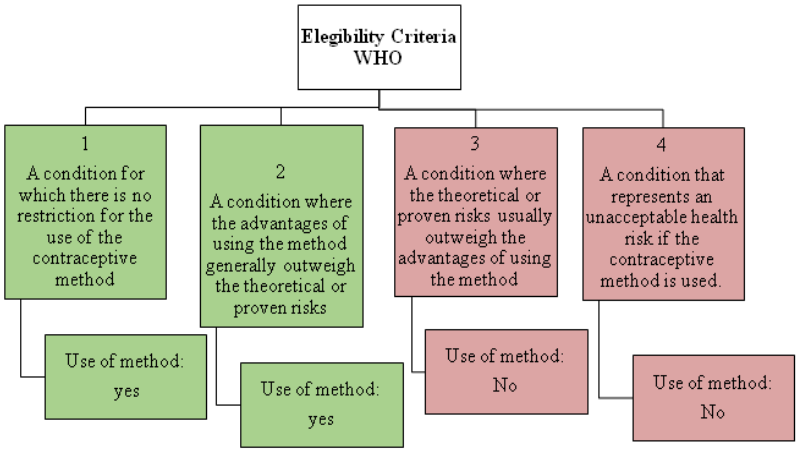

Figure 1: Eligibility criteria of the World Health Organization, 2015.
(Adapted from the Medical Eligibility Criteria for Contraceptive Use - Fifth edition - 2015) [9].

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Table 1: Reversible contraceptive methods for obese women and possible associated comorbidities.

	CHC	POP	DMPA	ETG Implant	LNG-IUS	Cu-IUD
Obesity	(2)	(1)	(1/2)	(1)	(1)	(1)
Bariatric surgery						
Restrictive procedures	(1)	(1)	(1)	(1)	(1)	(1)
Malabsorptive procedures	COC (3) Others (1)	(3)	(1)	(1)	(1)	(1)
Uncontrolled SAH (mmHg)						
-140-159 x 90-99	(3)	(1)	(2)	(1)	(1)	(1)
- ≥ 160 x ≥ 100	(4)	(2)	(3)	(2)	(2)	(1)
SAH plus Vascular disease	(4)	(2)	(3)	(2)	(2)	(1)
Dyslipidemia with no other risk factors	(2)	(2)	(2)	(2)	(2)	(1)
Dyslipidemia with other risk factors	(3/4)	(2)	(3)	(2)	(2)	(1)
Personal history of DVT/PE or Thrombophilia	(4)	(2)	(2)	(2)	(2)	(1)
Family history of DVT/PE (1st degree relatives)	2	(1)	(1)	(1)	(1)	(1)
Current presence or history of ischemic heart disease	(4)	(2/3)*	(3)	(2/3)*	(2/3)*	(1)
History of ischemic heart disease	(4)	(2/3)*	(3)	(2/3)*	(2/3)*	(1)
Multiple cardiovascular risk factors (MeTS)	(3/4)	(2)	(3)	(2)	(2)	(1)
DM2 (regardless of insulin use)						
- non-vascular disease	(2)	(2)	(2)	(2)	(2)	(1)
-nephropathy, retinopathy, neuropathy or another vascular disease or diabetes of > 20 years duration	(3/4)	(2)	(3)	(2)	(2)	(1)

*If the ischemic episode occurred during the use of POC (POP, Implant and LNG-IUS), the method is defined as category 3; if the patient has a personal history of ischemic heart disease and the event occurred before the use of POC, the method is defined as category 2 and can be started.

CHC: Combined Hormonal Contraceptives; COC: Combined Oral Contraceptives; POP: Progestogen-Only Pill; DMPA: Depot Medroxyprogesterone Acetate; ETG: Etonogestrel; LNG-IUS: Levonorgestrel-Releasing Intrauterine System; Copper IUD: Copper Intrauterine Device; SAH: Systemic Arterial Hypertension; DM2: Diabetes Mellitus Type 2; MetS: Metabolic Syndrome; DVT/PE: Deep Venous Thrombosis/Pulmonary Embolism

*Adapted from Center for Disease Control and Prevention [9] and the Medical Eligibility Criteria for Contraceptive Use - Fifth edition - 2015 [8].

49.1% to 56.5% in the same period among users of non-LARC methods (oral contraceptives, injectable methods, vaginal ring, and transdermal contraceptive patches) [10].

As the risk of vascular thrombosis can increase about two to three-fold in obese women [11], the European Society of Contraception and Reproductive Health (ESCRH) recommends that CHCs should only be prescribed for obese women with a BMI ≥35 kg/m^2 if other safer options are not available (such as POCs or non-hormonal methods). On the other hand, the ESCRH recommends that any contraceptive method may be prescribed for women with a BMI <35 kg/m^2 [12]. In addition to their safety from a cardiovascular perspective, the use of POCs is associated with non-contraceptive benefits, such as reduced menstrual bleeding associated with leiomyomatosis or anticoagulant use, improvement in pelvic pain related to endometriosis or adenomyosis [13], improvement in quality of life, as aid in the treatment of endometrial hyperplasia, and a reduced risk of endometrial cancer. The Copper IUD might decrease the risk of uterine and endometrial cervical cancer, making it another attractive option for patients with cardiovascular risk [14].

Bariatric surgery is the most effective and long lasting treatment for morbid obesity, allowing for weight reduction, compared to behavioral measures or pharmacological interventions [15]. Since approximately 50-80% of patients undergoing bariatric surgery are women of reproductive age [16,17], the prescription of hormonal contraceptives in this group deserves further attention. The American Congress of Obstetricians and Gynecologists (ACOG) and the American Society for Metabolic and Bariatric Surgery recommend that pregnancy should not occur until 12-18 months after surgery [18,19], due to unique risks in women who undergo bariatric surgery:

1) The prevalence of cardiovascular risk factors is higher in women suffering from morbid obesity [8,9].

2) Metabolic and nutritional changes that occur after bariatric surgery may increase maternal morbidity and interfere with fetal development [such as prematurity, small for gestational age (birth weight below the 10th percentile for gestational age)] [20].

3) Infertility associated with an ovulation caused by polycystic ovary syndrome is more frequent in obese women and postoperative weight loss (5-10%) may restore ovulation [21,22].

4) Twelve months after surgery, the sexual desire is likely to increase, allowing for an improved sexual function [23] and increasing the risk of unplanned pregnancy in the absence of a proper guidance on contraception.

The type of bariatric surgery may interfere with the effectiveness of oral hormonal contraceptives. Malabsorptive bariatric procedures are associated with a higher failure rate of oral hormonal contraceptives.

On the other hand, oral compounds are safe for women who undergo restrictive surgery [24]. Therefore, the CDC recommends that women should not take oral CHCs or oral progestogen (category 3) after undergoing malabsorptive bariatric surgery. Only non-oral methods are recommended, after taking into account the presence of associated comorbidities, medications, and associated habits [9].

Even though both gynecological and surgical societies recommend delaying pregnancy after bariatric surgery, 35% of surgeons are unaware of their patients' contraceptive history. This represents a clinical concern and suggests the need to intensify multidisciplinary collaboration among bariatric surgeons and gynecologists in order to minimize the inherent risks from inappropriate contraceptive use in the postoperative period [25].

(Table 1) shows the eligibility criteria for the contraceptive methods used by obese women and the most common comorbidities in this group, according to the CDC, 2013 [9] and the WHO guidelines [8] updated in 2015.

In conclusion, isolated obesity is not a contraindication to any hormonal contraceptive method. However, due to a greater association with cardiovascular risk factors, POCs and Copper IUD are safer contraceptive options since they do not increase the risk of vascular thrombosis and may be used in different situations that contraindicate CHCs. Since the effectiveness and continuity rate are higher with the use of LARCs, these methods are a safe option, especially in women suffering from morbid obesity who undergo bariatric surgery, as LARC scan be used regardless of the type of surgery. Ongoing education of gynecologists and surgeons is essential to minimize the inherent risks in the surgical treatment of obesity, until women achieve a proper weight control for planning a healthy pregnancy.

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