1

Definition and Epidemiology of Obesity

Defining Obesity

Obesity is defined by the WHO by a body fat of greater than 35% in women [that can be calculated using dual-energy X-ray absorptiometry (DEXA)].

The most commonly used tool and easiest to calculate clinically is Body Mass Index or BMI [(weight in kg/height in m²)] and inexpensive.

BMI Categories

BMI categories are defined by the Center for Disease Control (CDC) and Prevention and the WHO as:

- Class I obesity: 30 - 34.9 kg/m²
- Class II obesity: ≥ 35 kg/m²
- Class III obesity: ≥ 40 kg/m²

Epidemiology of obesity

Currently in Europe 20 to 30% of adults are clinically obese and prevalence has doubled in less than two decades.
**Are obese women at risk for pregnancy?**

« ...Extremes in weight can affect fertility. Obesity is associated with ovulatory dysfunction, a decreased rate of spontaneous pregnancy and a decreased response to fertility treatment.

Despite this potential decrease in fertility, more than one fifth of pregnancies in the United Kingdom and other developed countries are in obese women... »

K.A.Shan et al., 2003

**Obesity and metabolic syndrome**

« ...As an integral part of obesity the metabolic syndrome describes numerous metabolic abnormalities that together with obesity increase the cardiovascular and diabetes risk. Moreover, pregnancy in obese women often leads to severe morbidities... »

G.S. Merki-Field et al. 2015

**Obesity and Contraception**

**European Society of Contraception Statement on Contraception in Obese Women**

Gabriele S. Merki-Field, Sven Skouby, David Serfaty, Medaard Lech, Johannes Bitzer, Pier Giorgio Cresignani, Angelo Cagnacci  and Regine Sitruk-Ware

The European Journal of Contraception and Reproductive Health Care, 2015; 20: 19-28
3

Combined Hormonal Contraceptives and Obesity

Are combined hormonal pills, rings and patch efficace in obese women?

- **Summary:** The majority of qualified observational and prospective studies do not indicate a decreased efficacy of COC in obese women. Data are limited for women of obesity class II and III.
- Excessive weight gain in females with BMI >35 cannot be excluded. The combined and progestin-only contraceptive patch are efficient in women with BMI up to 35.
- The POCP is considered to be the most efficacious contraceptive agent in obese women.

European Society of Contraception Statement on Contraception in Obese Women:
G.S. Merki-Field, S. Skouby, D.Serfaty et al. EJCRH 2015; 20: 19-28

Are oral contraceptive combined pills safe in obese women?

One of the major concerns with the use of oral contraceptive containing progestins is the increased risk for venous thromboembolism (VTE).

Obesity alone doubles the risk of VTE and when combined with COC, this risk increases further. However, the combined risk of obesity and pregnancy far exceeds the risk of an obesity and COC use.

K.A. Shaw et al. 2013

Do oral contraceptive pills impact body weight?

- **Summary:** Typically, most adults gain weight over time. Pregnancy is associated with weight gain. For obese women, pregnancy is associated with weight gain and they return close to their pre-pregnancy weight.

Pharmacokinetics of combined hormonal pills, ring and patch in obese women

- **Summary:** Pharmacokinetics studies with COC and CVR found reduced ethinylestradiol levels, but no decreased progestin levels in obese women. This did not result in decreased estrogen suppression, probably because the progestin is the most relevant for contraceptive efficacy. However, because steady state of the progestin levels is delayed, it has to be considered whether additional protection would be useful for 14 days in obese new starters.

European Society of Contraception Statement on Contraception in Obese Women:
G.S. Merki-Field, S. Skouby, D. Serfaty et al. EJCRH 2015; 20: 19-28

<table>
<thead>
<tr>
<th>Risk of Venous Thromboembolism on COCs</th>
<th>Incidence of VTE per 1,000</th>
<th>Incidence of VTE on COC per 1,000 Women</th>
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</thead>
<tbody>
<tr>
<td>General population</td>
<td>42.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Obesity (BMI &gt;35)</td>
<td>15.6-32.8</td>
<td>20-120</td>
</tr>
<tr>
<td>BMI 30-34</td>
<td>11.5</td>
<td>47</td>
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<td>BMI 35-39</td>
<td>12.5</td>
<td>63</td>
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<td>BMI 40-49</td>
<td>12.5</td>
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<tr>
<td>Age</td>
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<td>15-30</td>
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<td>18-40</td>
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<td>40-49</td>
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<td>Diagnosis</td>
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<tr>
<td>Obesity &amp; Diagnosis</td>
<td>10-13.8</td>
<td>1-8</td>
</tr>
</tbody>
</table>

Incidence of VTE per 1,000 Women | Incidence of VTE on COC per 1,000 Women

K.A. Shaw et al. 2013
COCs, obesity and stroke and myocardial infarction

Despite the known increased risk of VTE with obesity and COCs, there is no clear evidence whether obese women have an increased risk of embolic events like stroke or myocardial infarction (MI).

US-MEC, MMWR 2010

Benefits of COCs in Obese Women (1)

"...Obesity is associated with poorer pregnancy outcomes both for the woman and her child.

K.A. Shaw et al, 2013

Risk for VTE and arterial events in CHC obese women users

"...Summary: CHC do further increase the risk for VTE and ATE in obese women. Therefore they should only be used if no other acceptable contraceptive methods like progestin-only contraceptives or intrauterine devices are available or acceptable - or if benefits still outweigh the risks. Obese women should be informed of their risk of thrombosis and should be counselled on the added risk of taking combined hormonal contraceptives.

Particularly obese older women


Benefits of COCs in Obese Women (2)

"...An obese mother increases the risk of an obese child... Obese women have a higher risk of endometrial cancer and may benefit from the decreased risk of endometrial hyperplasia and endometrial cancer associated with COC use.

K.A. Shaw et al, 2013

Progestin-only contraceptive methods in obese women
**TOC in obese women**

Progestin-only contraceptives (POC) include progestin-only pills (POP) with norethisterone, levonorgestrel or desogestrel; levonorgestrel releasing intrauterine systems (LNG-IUS); injections with depot medroxyprogesterone acetate and subcutaneous implants releasing etonogestrel or levonorgestrel.

The mode of action of POPs ranges from full inhibition of ovulation to a local barrier to sperm transport by increasing viscosity of cervical mucus.

From the standpoint of venous and arterial thrombosis, progestin-only agents are the safest hormonal methods.

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**POP in obese women**

The Summary of Guidance indicates a decision on efficacy of POPs in obese women. Progestin-only pills do not increase VTE and ATC risk in the risk group of obese women, it can be considered a good option in obese women to be an important and safe option.

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**Depo-medroxyprogesterone acetate (DMPA) in obese women**

Risk of venous thrombotic events among injectable MPA users compared with non-users

<table>
<thead>
<tr>
<th>Authors, year of publication</th>
<th>Year of enrollment</th>
<th>O/R ORSA, CEI MPA &amp; non-users</th>
<th>WHO (2015) non-control</th>
<th>Year 2015</th>
<th>% of obese (LNG-IUS) Pooled OR</th>
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</thead>
<tbody>
<tr>
<td>WHO (2015) non-control</td>
<td>2006-2008</td>
<td>3.20 (6.8-1.0)</td>
<td>2005-2006, 2009</td>
<td>3.5 (9.8-1.5)</td>
<td>3.4 (1.8-6.7)</td>
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<td>Van Hylckama Vlieg 2015</td>
<td>2004</td>
<td>3.40 (1.3-8.6)</td>
<td>2005-2006, 2009</td>
<td>3.5 (9.8-1.5)</td>
<td>3.4 (1.8-6.7)</td>
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</table>

MPA: medroxyprogesterone acetate

G. Pho-Bruno et al.
Best Practice & Research Clinical Endocrinology/Metabolism
2015;29:20-34

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**Nexplanon in obese women**

"...even if epidemiologic and clinical data at present are limited..." The WHO MEC 2015 do not include any restriction for the use of POP in obese women. But the impressive bleeding pattern of POP may limit the acceptability of the method in some women.

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**Summary: DMPA as effective contraceptive in overweight women and obese women. Data in regard to the associated VTE risk are limited. Depot POPs are less obese progestogen-only method likely to be the better choice, if available and accepted by the women.""
Emergency contraception in obese women

- Three options are available for EC in the majority of European countries: LNG 1.5mg; UPA 30mg; Cu-IUD

- Women who are obese can use LNG or UPA as emergency contraceptive pills without restriction (= WHO MEC Category 1, 2015)

Intrauterine devices and intrauterine systems in obese women

- Summary: Copper-IUDs should be recommended in obese women. LNG-IUS is a safe and effective contraceptive method for obese women without complication for use of a device. In patients with heavy menstrual bleeding, this device is more beneficial than the copper-IUD. An advantage might be the protection of the endometrium in obese women.

ESC Statement on Contraception in obese women, EJCRH, 2015

Are there special considerations for COC use in women undergoing bariatric surgery? (2)

- Although data is limited on the effect of bariatric surgery on oral contraceptive effectiveness, a recent systematic review concluded that there is no decrease in efficacy. However, due to the limited data available, oral contraceptive pill (both COCs and progesterin-only) are generally not recommended for patients undergoing mal-absorptive procedures (Roux-en-Y gastric bypass) because of concerns regarding decreased efficacy. Use is not limited in those undergoing restrictive procedures (gastric banding)....

K.A. Shaw, A. Edelman, 2013

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K.A. Shaw, A. Edelman, 2013

CONCLUSION

- In summary, using contraception to prevent unwanted pregnancies is recommended to all women whatever their weight, as it reduces the risks of unplanned pregnancy, which is higher in overweight women. Progestin-only contraceptives and IUDs have no or minimal metabolic effects and are effective in most women with obesity. CCHC are associated with a higher risk for VTE in obese women, but should be used if other methods are not acceptable...

We must not stigmatize obese women.

We must help them choose their ideal method of contraception.

They particularly need our empathy.

Thank you.