ISGE
GYNECOLOGICAL ENDOCRINOLOGY
THE 18TH WORLD CONGRESS
7-10 MARCH 2018 FLORENCE, ITALY

Update on oral emergency contraception mechanisms of action

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Emergency contraception (EC) is a contraceptive method that offers a second chance to prevent pregnancy when regular contraception has failed or no method has been used. The hormonal methods (ECP) are usually considered as more convenient than the insertion of a copper intrauterine device (Cu-IUD), which is otherwise the most effective method. In the late 1990ies treatment with levonorgestrel (LNG) only, or mifepristone, emerged and were shown to be associated with less side-effects and higher efficacy than the Yuzpe regimen. While mifepristone is currently only used in China and Russia a progesterone receptor modulator, Ulipristal acetate (UPA), has become more widely approved. A single dose of 30mg UPA is recommended for use up to 120 hours after unprotected intercourse. A meta -analysis of clinical trials comparing UPA with a single dose of 1.5 mg LNG demonstrated that UPA has higher efficacy. Both treatments have similar side effects. However, the mechanism(s) of action of these methods when used for EC remains a matter of concern. We therefore evaluated the effect of doses effective for EC on ovulation as well as endometrial development and function. Taken together available data suggest that the mechanism of action of both LNG and UPA for EC is delaying or inhibiting ovulation but does not prevent fertilization or implantation. However, UPA appears to have a direct inhibitory effect on follicular rupture that allows it to be effective even when administered shortly before ovulation, a time period when LNG is no longer effective. Therefore, further acts of unprotected intercourse after ECP use should be avoided to prevent the risk of pregnancy at the time of the delayed ovulation. When “quickstarting” ongoing contraception after the use of ECP possible drug interaction should be considered.

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