Expert Opinion

Oral contraceptive pills and possible adverse effects

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Abstract

Oral contraceptive pills (OCPs) containing estrogen and progestin or progestin only were introduced as a contraceptive option for women in 1960. Since their introduction to the market, there have been significant changes in the drug content and formulations of these products, in part to decrease the risk of adverse effects. The OCP products available today, particularly combined oral estrogen and progestin products (COCs), continue to be widely used. The major adverse effect associated with COCs is an increased risk of a cardiovascular event. COCs are contraindicated for women with increased cardiovascular risk, increased thromboembolic risk, significant liver disease, systemic lupus erythematosus, or migraine with aura. In addition, both COCs and progestin-only pills (POPs) are contraindicated in patients with a personal history of breast cancer. Commonly reported minor adverse effects may include menstrual bleeding pattern changes, breast tenderness, headache, mood changes, and nausea. Frequently these minor adverse effects subside following the initial 3 months of appropriately administered therapy, and otherwise may be managed by changing the hormone strength or product formulation and confirming patient adherence. It is imperative that providers are familiar with the potential adverse effects associated with OCP use, so they may in turn educate and counsel patients. Since adverse effects are the primary reason for OCP discontinuation, it is critical that patients are made aware of and expect these in advance and are counseled how to minimize or manage adverse effects. It is important to note that many women also use OCPs for noncontraceptive benefits, such as regulating menstrual irregularities, treatment of premenstrual syndrome, prevention of menstrual migraine, treatment of acne, and others.

Keywords: oral contraceptive pill; combined hormonal contraceptive; progestin-only pill; contraception; adverse effects.

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Introduction

Oral contraceptive pills (OCPs) were first introduced in 1960. Since then, the estrogen content in OCPs has been drastically reduced and new progestins have been developed. Currently there are a few progestin-only pills (POPs) and many combined oral contraceptives (COCs) which contain both estrogen and progestin. Among the COCs, the majority are the traditional 28-day cycle, though some products have a reduced number of pill-free days, extended cycle, or continuous cycle (no pill-free days) formulation.

Over 80% of women have used OCPs at some point during their reproductive years, although POPs are rarely used [1, 2]. Among women aged 15–44 years of age at risk of unintended pregnancy, nearly all (89%) are using a method of contraception [3]. The most commonly used reversible methods by women in the United States are OCPs (28% of all contraceptive users) and less effective male condoms (16%), whereas far fewer are using injectable medroxyprogesterone, patch/ring, or intrauterine device (IUD)/implant contraceptive methods (4%, 3%, and 6% respectively). With typical use, 9% of women using OCPs will become pregnant over one year of use [4].

The most common reason women use OCPs is to prevent pregnancy; however, 58% also use OCPs for their noncontraceptive benefits, such as correcting menstrual irregularities, treatment of premenstrual syndrome, prevention of menstrual migraine, treatment of acne, and others [5, 6]. Additionally, 1.5 million women (14% of all OCP users) use OCPs exclusively for noncontraceptive indications [6]. It is important to consider this when educating women about the effects, both desired and adverse, that patients can expect with these medications.

The safety of OCPs has been established over decades of use. While clinical breast and pelvic examinations are commonly accepted practices for provision of hormonal contraception, these health screenings are unnecessary requirements and may reinforce the incorrect perception that these contraceptive methods are dangerous [7, 8]. OCPs, among selected other methods, can be safely provided following assessment of the patient's self-reported medical history and blood pressure.

Women can accurately screen themselves to determine candidacy for OCP use using a medical history checklist [9, 10]. In fact, the prevalence of contraindications is very low and women are more likely to identify contraindications than providers [9, 11]. OCPs are available over-the-counter without restriction in many countries [4]. For these reasons, there are efforts underway to expand access to these vital preventative medications in the United States. OCPs are being made available after pharmacist consultation in selected states [12, 13]. To remove even more barriers to access, there are recommendations to make OCPs available over-the-counter without restrictions [4, 14–16].

It is imperative that providers are familiar with the potential adverse effects associated with oral contraceptive pill use, so they may in turn educate and counsel patients. Since adverse effects are the primary reason for OCP discontinuation, it is critical that patients are made aware of and expect these in advance and know when they should tolerate nuisance adverse effects versus seek medical attention for serious adverse effects [1, 17]. Patients should be advised of which adverse effects warrant action versus inaction. In order for patients to understand the consequences, providers may need to frame the risks and incidence of adverse effects in various ways. For example, expressing the absolute risk may be more appropriate than expressing the relative risk for an outcome with low incidence.

Oral emergency contraceptive pills will not be reviewed in this paper. Their safety and adverse effects have been described in detail elsewhere [18].

Combined Oral Contraceptives

Bleeding Pattern

Most women using COCs will report beneficial effects related to menses such as less menstrual bleeding, cycle regulation, and less painful periods due to the hormone use. For some women, however, they may experience irregular bleeding known as breakthrough bleeding. Breakthrough bleeding or spotting is when a woman has vaginal bleeding that is not at the time of her expected menses. Breakthrough bleeding usually requires a form of feminine napkin or tampon to absorb the amount of blood while spotting is a smaller amount of blood that may or may not require feminine products.

Women may find this side effect quite burdensome. One study reported that about 30% of women stopped their COCs due to breakthrough bleeding [19].

Breakthrough bleeding is directly related to the hormonal components in COCs; it may be due to deficiencies in either the estrogen content, progestin content, or both, depending on when bleeding occurs in the cycle. Estrogen and progestin work together to build the endometrium lining of the uterus. The estrogen is generally responsible for the proliferation of the endometrium while the progestin maintains it. If there is not enough estrogen, the endometrium may be frail and will easily shed. If there is not enough progestin to hold the lining to the uterine wall, the endometrium may also become weak and shed, resulting in breakthrough bleeding. Early breakthrough bleeding in the cycle suggests a need for more endometrial proliferation and is likely related to estrogen deficiency. Breakthrough bleeding late in the cycle may indicate a need for more endometrial support and is likely due to progestin deficiency. Excess estrogen may also prevent withdrawal bleeding from occurring when a woman is taking her placebo pills. Breakthrough bleeding most often improves within 3 months of use and women should be encouraged to continue the product; an alternative product should be considered if breakthrough bleeding continues after 3 months of use [20].

If a woman experiences breakthrough bleeding, it is important to rule out other possible causes (e.g. infection, pregnancy, cancer) before considering it an adverse effect of COCs [19]. Poor COC adherence results in decreased hormone levels which may not be sufficient to maintain the endometrial lining, and thus, may result in breakthrough bleeding. In fact, non-adherence to a prescribed COC regimen has been cited as one of the most common causes of breakthrough bleeding [21]. One study found that missing two consecutive tablets in a cycle resulted in breakthrough bleeding in 10 out 12 cycles [22]. Another study conducted in over 900 women determined that women who reported breakthrough bleeding or spotting were 1.6 to 1.7 times more likely to have missed two or more tablets in their cycles than those who did not [23]. Given that non-adherence is one of the most common reasons for breakthrough bleeding and subsequently a reason for discontinuation, educating patients regarding the potential side effects related to missed doses is crucial. In addition, women who are educated about the possibility of breakthrough bleeding may be more likely to tolerate it in the short-term, and thus, theoretically may continue the COC longer term when eventually breakthrough bleeding ceases [21, 24]. Likewise possible drug interactions, smoking tobacco, or gastrointestinal illnesses may decrease systemic levels of COCs resulting in breakthrough bleeding [21]. Counseling patients on these possible causes of breakthrough bleeding may increase adherence and maintain method effectiveness.

Breast Changes

Mastalgia is a common side effect reported with COC use [25]. Estrogen may cause hypertrophy of the adipose tissue within the breast causing the breast size to increase and may stimulate terminal ductal lobular tuft growth, more so in women who have not given birth [20]. It has been noted that over time, mastalgia improves with continued COC use. Some data suggest that combined oral contraceptives decrease breast tenderness after 18 months of use [26]. Lower hormone doses may also help alleviate these side effects [20]. Other beneficial effects on breast tissue include decreasing fibrocystic changes. Some studies suggest women using COCs have lower risks of benign breast conditions such as cysts, fibrocystic changes or fibroadenoma, particularly if started before their first full-term pregnancy [20, 27].

Some controversy exists regarding COCs use and an association with developing breast cancer. The overall lifetime risk of breast cancer reported in women is 12–13% [28]. Most data indicates that the risk of breast cancer does not increase with the use of COCs. One meta-analysis reviewed over 54 studies looking at 150,000 women and concluded that women currently taking COCs and women within 10 years of discontinuation of COCs had a small increase in the relative risk of having breast cancer diagnosed within 10 years of use. The relative risk rates of developing breast cancer decreased at 1 to 4 years after discontinuing oral contraceptives, and decreased again at 5 to 9 years after discontinuation, with no differences reported between COC users and non-users after 10 years of use. This analysis was criticized, however, due to the older age of women studied, suggesting age was the risk factor for diagnosis of breast cancer and not the effect of contra-

ceptives [13, 29].Several other studies found no differences in relative risk for developing breast cancer with COC use including for those women who were BRCA1 or BRCA2 positive [30–33]. Another study's subgroup analysis, however, showed a small increase for breast cancer rates in women who used oral contraceptives prior to a full term pregnancy [34]. While the data is controversial, current practice and the U.S Medical Eligibility for Contraceptive Use (USMEC) indicate that oral contraceptives do not increase the risk for breast cancer and the use of COCs should not be limited unless the patient has a personal history of breast cancer [35].

Cancer

The use of COCs are associated with lower incidences of certain cancers, including endometrial, ovarian, and colorectal cancers [36]. COCs may reduce the risk of endometrial and ovarian cancers up to 50% and the protection seems to persist even after COC discontinuation [37]. Recent COC users may have an increased risk of breast cancer, but the risk appears to wane after 10 years from discontinuing therapy (see above section Breast Changes). However, long-term use of COCs is associated with an increased risk of cervical cancer, especially in women who are carriers of human papilloma virus (HPV) [36, 37]. This association is not definitive, as many other factors likely contribute to the development of cancer, including the lack of use of barrier methods and number of sexual partners [38]. As noted previously, the USMEC indicates that OCPs are not appropriate for women with a personal history of breast cancer, but are acceptable for those with a personal history of endometrial, ovarian, or cervical cancers.

Weight

Weight gain is a common concern with women who use COCs; however, it does not occur in the majority of women. A 2004 systematic review and a 2014 Cochrane review did not identify a substantial effect on weight with use of oral contraceptives. Both reviews found that discontinuation rates due to weight change did not differ between groups [39, 40]. These studies determined that current evidence is insufficient to definitively refute a causal association between combination contraceptives and weight gain, and most comparisons in the included trials showed no substantial difference in weight [40]. For example, one study evaluating 2,863 women between 2000 and 2004 found no differences between contraceptive products in terms of weight gain, including differences between estrogen dose, sequence of administration (monophasic vs. triphasic), cycle length (extended cycle vs. standard regimens), and progestin type (second vs. third generation) [41, 42].Another trial looked at the daily weights of 128 women using a low-dose COC. Defining weight gain as more than 2 pounds from baseline weight, 52% reported no weight gain and 33% had a weight gain or loss of 5 pounds or less [43].

However, from a pharmacological perspective excess estrogen is thought to lead to water retention and bloating which could result in a cyclic weight gain. In addition, estrogen may cause hypertrophy of adipose tissue so women may notice an increase in breast or hip size [20]. If a woman is concerned with this issue, a low-dose estrogen and low-dose progestin combination product is probably the best choice. One progestin, drospirenone, has anti-mineralocorticoid properties that block the mineralocorticoid effect of estrogen, which results in less water retention and weight gain. Drospirenone also has anti-androgenic properties. In women experiencing or concerned about weight gain or water retention, a product containing drospirenone may be a good option.

Headache

COCs have been shown to affect the neurologic system [36]. While headache can be a nonspecific symptom, it is one of the more commonly reported reasons for discontinuation of COCs [44]. Data regarding the incidence of headache that is attributable to COC use is conflicting. Placebo-controlled trials reported a higher incidence and worsening of headaches in high estrogen (>50 mg/pill) treatment groups, compared to trials with lower estrogen doses where there was no difference between groups [44]. The prevalence of headaches in COC users appears to increase with age, which is expected since the prevalence of headaches in the general population also increases with age. However, the occurrence of headaches in COC users tends to wane with

continued use, with each subsequent cycle having a lower risk of experiencing headache. There appears to be no difference in headache frequency between doses and types of progesterone included in COCs [44]. In fact, more headaches tend to occur at the conclusion of the active pills, concluding that the effect is more likely due to estrogen withdrawal. Eliminating the withdrawal of estrogen by using extended-cycle or continuous COCs has also been shown to improve headache duration, severity, and frequently, compared with the standard regimen which contains placebo tablets [45].

Women who suffer from headaches or migraines prior to initiation of COC are more likely to experience worsening of their headaches when using COC [44, 46]. Migraines with aura and use of COC are independent risk factors for cerebrovascular accidents. Because of this, avoidance of combined COC in migraine sufferers is advised, particularly in those greater than 35 years of age, and is contraindicated in patients with aura according to the USMEC [46, 47]. However, it is important to note the use of COCs have been shown to reduce the frequency and severity of menstruation-related migraines and may even be used as treatment [46].

Mood

COC use is associated with mood changes, although data is inconsistent [48-50]. Some studies have shown an increased rate of depression in COC users, compared to other studies that reported decreased rate or no difference in depression among COC users compared to non-users [48]. Particular characteristics of COCs themselves may also play a role in mood disturbances [48]. Monophasic formulations seem to have less mood variability compared to multi-phasic formulations, as do formulations with higher progesterone to estrogen ratios.

Individual patient characteristics may predispose patients to negative mood changes when using COCs, too. For instance, women who have a history of depression prior to COC use are more likely to suffer from depression or depressive symptoms during use [48]. However, age does not appear to be a predictor of mood change, and the USMEC indicates that a history of depression or depressive disorders should not inhibit COC use [35, 48, 49].

COCs are frequently used to improve premenstrual dysphoric disorder (PMDD), a condition that includes depressed mood and affective instability [36, 50]. One study reported a 49% reduction in symptoms using a drospirenone-containing COC. Only one COC is currently indicated for the treatment of PMDD. However, COC formulations with lower progesterone doses, especially at the end of the cycle, may be beneficial as well [36].

Nausea

The incidence rate of nausea with COC use ranges from approximately 3% to 6 % of users [41]. Studies have demonstrated that there is no significant difference in nausea incidence between types of COCs, including variations in estrogen content and progestin type [41, 51]. Commonly the initial side effects of bloating and nausea will subside after several months of use as the body acclimates to the contraceptive hormones [20]. Women should be encouraged to continue the method for 3 months before changing agents; however, if nausea persists consider decreasing the estrogen dose and counseling the woman to take her pill before bed in order to sleep through high serum hormone levels.

Dermatologic

A Cochrane review found that COCs improve acne and are an effective treatment option for many patients [52]. In one study, 70% of patients with acne at baseline reported resolution of symptoms after 6 months of COC use. However, if acne does not improve within 6 months, typically it will not improve with further use [53]. Currently 3 OCPs have U.S. Food and Drug Administration approved indications for the treatment of acne; however other COCs are also likely to be effective. Studies have not clearly demonstrated how the different progestin types in COCs alter the efficacy of acne treatment [52], but typically agents with third or fourth generation progestins are preferred because they are less androgenic. Complaints relating to androgenic side effects such as worsening or new onset acne, oily skin, or hirsutism are commonly noted in progestin only injections, implants or IUDs, however they are rarely reported in clinical trials with the low dose COCs used in practice today.

Other dermatologic effects associated with COC use may include relatively rare conditions such as chloasma or melasma. Melasma is a hyperpigmentation of the skin, associated with 10–20% of COC users [54]. Studies have been conflicting as to which component of COCs cause melasma, but both progesterone and estrogen stimulate the synthesis of melanin in melanocytes [36, 55]. Sun exposure also increases the incidence of hyperpigmentation.

Cardiovascular

The risk of cardiovascular adverse effects related to COC use, including hypertension, myocardial infarction (MI), stroke, and venous thromboembolism (VTE), may elicit controversy and concern for both patients and providers. The estrogen component in COCs has been linked to adverse cardiovascular events in users, despite newer agents containing much lower doses of estrogen [56]. The USMEC recommends avoiding the use of COCs in patients with a systolic blood pressure $\geq$ 160 mm Hg, diastolic blood pressure $\geq$ 100 mg Hg, history of stroke or vascular disease, or a history of a deep venous thromboembolism (DVT) or pulmonary embolism (PE) with a high risk of recurrence. Caution is also recommended with women who have a systolic blood pressure of 140–150 mm Hg, diastolic blood pressure of 90–99 mm Hg, or low risk of recurrent DVT, as women with hypertension who use COCs have a higher risk of stroke, acute myocardial infarction, and peripheral arterial disease when compared to nonusers [35].

Initial studies evaluating the use of COCs and blood pressure utilized preparations which contained 50 µg or more of estrogen. The link between a blood pressure increase and COC use was thought to be due to the high dose of estrogen, but more recent studies utilizing the contemporary, lower-dose COCs have also found a conservative increase in blood pressure. The ENIGMA Study, which examined young women with a mean age of 20 years in the United Kingdom, reported a small, but statistically significant difference in systolic blood pressure between women who used COCs and those who did not (112$\pm$12 vs. 110$\pm$11 mm Hg; P = 0.04). Investigators also discovered aortic stiffness, measured by aortic pulse wave velocity, was also higher in the COC user group [57]. Another recent cross-sectional study found that blood pressure was higher in Korean women who used COCs with an estrogen content of 20–40 µg for more than 24 months compared to those who never used COCs (OR 1.96; 95% CI 1.03–3.73) [58].

The risk of stroke exponentially increases with age in women who use contraception. The incidence of stroke is 3.4 cases per 100,000 women aged 15 to 19 years and 64.4 cases per 100,000 women aged 45 to 49 years [59, 60].The risk of stroke was found to increase by an estimated 2.75-fold (95% CI, 2.24–3.38) in women who used any COC in a meta-analysis of 16 case-control and cohort studies [61]. The American Heart Association and American Stroke Association recommend measuring blood pressure prior to initiating hormonal contraception and state that COCs may be detrimental and should be used with caution or avoided in women who have additional risk factors for stroke, such as cigarette smoking, migraine headaches, and previous cardiovascular events [62].

A cohort study involving Danish women ages 15 to 49 years examined the potential effect of COCs on MI risk. Women who used COCs were found to have a higher risk of MI. The relative risk of MI was divided by estrogen dose; COCs which contained 20 µg of estrogen had a RR of 1.4 (95% CI, 1.07 to 1.81), 30-40 µg had a RR of 1.88 (95% CI, 1.66 to 2.13), and 50 µg had a RR of 3.73 (95% CI, 2.78 to 5). The study also revealed that progestin type may impact MI risk. Desogestrel and norethindrone had the highest risks (RR, 2.09; 95% CI, 1.54 to 2.85 and RR, 2.28, 95% CI, 1.34 to 3.87, respectfully) [60].

With regards to COCs and thromboembolic events, Lidegaard and colleagues analyzed 10.4 million woman years, with 3.4 million woman years including current use of COCs, in their study of Danish women ages 15-49. During the cohort study, 4,213 venous thromboembolic events occurred (2,045 in women who used COCs). The absolute risk of VTE was estimated to be 3.01 per 10,000 woman years in non-users of COCs and 6.29 per 10,000 woman years in COC users. The authors also discovered the risk of VTE decreased with decreasing estrogen dose [60]. Additionally, the newer 3rd and 4th generation progestins have a slightly higher risk of thrombosis when compared to products with a 2nd generation progestin. Although the risk of VTE is higher in users of COCs than non-users, when counsel-

ing patients it may be beneficial to discuss this risk in relation to the increased risk of VTE during pregnancy or the postpartum period. The incidence rate of VTE in pregnant and post-partum women is increased to 20 events per 10,000 woman years [63].

Although the risk for cardiovascular related adverse effects is relatively small, women who have additional risk factors that may predispose them to cardiovascular events should be monitored regularly when taking COCs. COC use is not recommended for women with hypertension (SBP ≥ 140, DBP ≥ 90), history or increased risk of VTE, stroke, or multiple risk factors for arterial cardiovascular disease (older age, smoking, diabetes) [35].

Lipid Metabolism

The effect of COCs on lipid values is related to the dose of estrogen and the androgenicity of the progestin. Generally speaking, the estrogen component causes an increase in serum triglycerides, total cholesterol, and HDL concentrations, and a decrease in LDL concentrations [64]. Progestins typically have a relatively neutral effect on lipids, however the more potent androgenic progestins may counteract the effects of estrogen. Ultimately the net effect of these hormones depends on the dose and androgenicity of the agents used. One study demonstrated that the unfavorable effect on lipid profile with COC users resolved upon discontinuation of OCs [65]. The USMEC indicates that hyperlipidemia is not a contraindication for COC use but if present while currently using COCs they should be continued with caution. Screening for lipid disorders is not required for women without suspected cardiovascular disease. However, since COCs are likely to increase triglycerides by approximately 30%, women with elevated triglyceride levels (> 350 mg/dL) should not initiate or should use extreme caution when initiating COCs due to an increased risk of developing acute pancreatitis [20].

Hepatic

Hepatic adenomas are rare but are associated with oral contraceptives, and are correlated with long duration of use and high dose COCs. Hepatic adenomas may cause significant morbidity, including rupture of the liver capsule, extensive intraperitoneal hemorrhage, and even death. The USMEC indicates that COCs should not be withheld unless malignant tumors or hepatic adenomas are suspected; hepatic adenoma regression is expected following discontinuation [20]. Focal nodular hyperplasia, a non-malignant hepatic tumor, may develop without the use of COCs; however COCs may be a contributing risk factor for development of this hyperplasia. If a focal nodular hyperplasia develops, COCs may be continued with close monitoring to ensure the exogenous estrogen does not stimulate enlargement or growth [66]. Hepatocellular carcinoma does not appear to be dependent on low-dose COC use. A meta-analysis of 12 case-control studies found that evidence was inconclusive to establish a relationship between oral contraceptives and hepatocellular carcinoma [67].

Pregnancy and Fertility

The typical use failure rate of COCs is about 9% [68]. If these products are used appropriately, the chance of pregnancy is low. Along with the concern of pregnancy, women are also concerned with fertility after COC use. One review evaluated several studies from 1960 to 2007 assessing the return to fertility rates with discontinuation of COCs and found there were temporary delays in conception after discontinuing COCs [69]. Return to fertility with conception within in 1 year was 72–94% in former COC users, which was similar to other methods of birth control such as condoms (91%) and natural family planning (92%). There is less data regarding the use of extended-cycle and continuous-use oral contraceptives but available data suggests the rates of fertility are similar to those using cyclic COC regimens [69].

Progestin Only Pills

Progestin-only pills (POP), or minipills, contain no estrogen and low amounts of progestin compared to COCs, and are intended to be taken without interruption at the same time each day. POPs are safe and well tolerated, are appropriate immediately postpartum or for women who cannot or should not take estrogen in COCs [70] and may be preferred during breast feeding. POPs are more likely to cause abnormal menstrual

bleeding patterns, which may affect their acceptability and lead to poor compliance. These changes include irregular bleeding, short or long cycles, prolonged bleeding and spotting, or no bleeding at all. Overall, POPs are associated with more days of bleeding and spotting than are COCs [20]. Yet despite these differences in bleeding profiles, studies have shown similar satisfaction and continuation rates for women who use POPs when compared to COCs [71]. Other side effects that may occur during the first few months of use include nausea and vomiting, acne, and breast tenderness. Mood changes and headache are also reported, but there is no evidence of a causal association between the use of POPs respectively with depression or headache. Women of any age with a history of migraine (with or without aura) may safely use POPs [72]. As previously discussed, weight gain is more likely with the injectable progestin-only contraceptives (e.g depot medroxyprogesterone) than POPs [73]. Weight gain usually resolves upon discontinuation of POPs.

Formation of an ovarian cyst is a possibility with all forms of progestin-only contraception; it is usually harmless and resolves without treatment. POPs carry very little risk on cardiovascular outcomes and most progestins used in contraception do not modify the clotting factors [74]. A causal association does not seem to exist between POP use and breast cancer or cardiovascular disease, including myocardial infarction, VTE, or stroke [72].

Currently the only POPs available in the United States contain a second generation progestin, norethindrone 0.35 mg. POPs containing other progestins such as levonorgestrel or desogestrel are available in other countries. Third-generation POPs (e.g desogestrel) are less androgenic than second-generation POPs (e.g. levonorgestrel) and theoretically may result in less acne, hirsutism, alterations in lipid and carbohydrate metabolism and weight gain. The small number of POP users in the US [2] imposes limitations in designing studies to address their long-term safety, but available evidence suggests they are at least equally safe to, if not safer than, COCs.

Conclusion

Oral contraceptives have many benefits, both contraceptive and noncontraceptive. These products can safely be provided to women following assessment of their self-reported medical histories and blood pressure screenings, and POPs require only the evaluation of a self-reported medical history. Symptomatic adverse effects such as bleeding pattern changes, breast tenderness, nausea, and mood changes may improve after 3 months of use. It is critical that patients are made aware of these potentially transient adverse effects, since the primary reason for OCP discontinuation is side effects. Patients must also be educated about the symptoms of a serious adverse event such as thromboembolism or other cardiovascular event, and instructed to seek care if such symptoms develop.

Disclosure

There are no conflicts of interest.

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