CME

Cochrane for Clinicians

Effect of Adrenergic Agonist Oral Decongestants on Blood Pressure

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CLINICAL QUESTION

Does long-term use of adrenergic agonist oral decongestants increase blood pressure or cause other adverse effects in people older than 6 years?

EVIDENCE-BASED ANSWER

Adrenergic agonist oral decongestants taken for at least 7 days have little to no effect on blood pressure compared with placebo. These medications also appear to have little to no effect on heart rate or withdrawals due to adverse effects.[1] (Strength of Recommendation: C, consensus, disease-oriented evidence, usual practice, expert opinion, or case series.)

PRACTICE POINTERS

Patients commonly use oral decongestants to treat nasal, pharyngeal, and sinus mucosal congestion due to allergies and upper respiratory tract infections.[1] These medications constrict blood vessels by activating alpha-adrenergic receptors. Because of this vasoconstriction, it is thought that these medications may increase peripheral vascular resistance and heart rate, leading to increased blood pressure and increased risk for cardiovascular disease.[1] This risk is thought to be even higher for people with hypertension, which affects nearly one-half of all US adults.[2] The authors of this Cochrane review aimed to assess the effects of long-term daily use of oral decongestants on blood pressure and heart rate outcomes.[1]

This review included five randomized controlled trials with 882 participants older than 6 years.[1] All of the studies were published between 1986 and 2019. The studies were not primarily designed to assess long-term effects on blood pressure, rather the adrenergic agonist oral decongestants were evaluated for effects on weight loss, nasal congestion, and female stress urinary incontinence compared with placebo. Cardiovascular comorbidities of the participants were not reported. All of the studies were in the outpatient setting in the United States, Finland, or Denmark. Pharmaceutical companies funded three of the studies.

Adrenergic agonist oral decongestants included ephedrine (one study), pseudoephedrine (one study), and phenylpropanolamine (three studies) administered daily for at least 1 week with varying doses, frequency, and formulation.[1] Studies that evaluated phenylpropanolamine were published before 2000, when the drug was withdrawn from the US market due to an association with increased risk of blood pressure–related hemorrhagic strokes, especially in females.[3] The main outcomes assessed in this Cochrane review were systolic and diastolic blood pressure (change from baseline), heart rate (change from baseline), and withdrawals due to adverse effects. The duration of follow-up was 1 to 7 weeks.[1]

Compared with placebo, oral decongestants may have little to no effect on systolic or diastolic blood pressure based on very low-certainty and low-certainty evidence, respectively.[1] Compared with placebo, oral decongestants may have little to no effect on heart rate or withdrawals due to adverse effects (very low-certainty evidence and low-certainty evidence, respectively).

Variations in timing and accuracy of blood pressure measurements in the studies, lack of details on specific blood pressure monitors used, imprecision in effect estimates, and high risk of bias led investigators to conclude these results are based on overall low-quality evidence.[1] With these limitations, the long-term effects of oral decongestants on blood pressure remain unclear. Current guidelines recommend avoiding sympathomimetic medications such as oral decongestants in patients with uncontrolled or resistant hypertension, with less clarity regarding patients with mildly elevated blood pressure.[4]

Future updates of this Cochrane review should exclude studies with phenylpropanolamine, which was effectively removed from all over-the-counter products in the United States and Canada, and focus only on currently available oral decongestants. Until well-designed studies are available, family physicians should continue to caution high-risk patients about using oral decongestants.

The practice recommendations in this activity are available at https://www.cochrane.org/CD007895.

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Hormonal Contraception for Women at Risk of HIV Infection

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CLINICAL QUESTION

Does hormonal contraception use increase the risk of HIV acquisition among women at high risk of HIV infection?

EVIDENCE-BASED ANSWER

Use of hormonal contraception, including medroxyprogesterone depot injection and levonorgestrel implant, for up to 18 months in women who are at risk of HIV infection results in little to no difference in HIV acquisition rates compared with a nonhormonal method (ie, copper intrauterine device [IUD]).[1] (Strength of Recommendation: B, consistent, moderate-quality, patient-oriented evidence.)

PRACTICE POINTERS

Hormonal contraception is a widely used family planning method, with more than 140 million users worldwide. In the United States, one in four women of reproductive age relies on hormonal contraception.[2] Because HIV remains a leading cause of global morbidity and mortality, it is essential for clinicians to understand how hormonal contraceptive use impacts HIV risk. This Cochrane review assessed whether hormonal contraception use increased the risk of HIV acquisition among women in settings with high HIV prevalence.

The review included four randomized controlled trials involving 9,726 HIV-negative females (HIV status of sex partners not defined), ranging in age from 15 to 45 years, in four countries with high HIV prevalence.[1] Three studies were parallel-group randomized controlled trials, and one smaller trial was a crossover study. Three hormonal contraception options were examined: medroxyprogesterone depot injection, levonorgestrel implant (not available in the United States), and norethisterone enanthate injection (not available in the United States). The medroxyprogesterone injection and levonorgestrel implant were compared with a nonhormonal contraception method (ie, copper IUD). In addition, the three hormonal contraception methods were compared with each other. The primary outcome was incidence of HIV acquisition. Pregnancy rates and adverse effects were secondary outcomes.

There was little to no difference in HIV acquisition rates in patients using hormonal contraception vs copper IUD contraception.[1] The authors concluded that using medroxyprogesterone injection slightly increased risk of HIV infection compared with levonorgestrel implant (56 per 1,000 vs 45 per 1,000, respectively), but the results were not statistically significant (risk ratio [RR] = 1.25; 95% CI, 0.98-1.58; P = .007). HIV acquisition rates for medroxyprogesterone injection compared with norethisterone enanthate injection are uncertain.

Secondary outcomes favored hormonal contraception for preventing pregnancy.[1] Women using medroxyprogesterone injections were less likely to become pregnant (RR = 0.53; 95% CI, 0.39-0.71), discontinue the method (RR = 0.50; 95% CI, 0.40-0.62), or experience adverse effects (RR = 0.53; 95% CI, 0.38-0.75) compared with women using the copper IUD (high-certainty evidence).Similarly, women using levonorgestrel implants were less likely to become pregnant than those using the copper IUD (RR = 0.67; 95% CI, 0.51-0.89; moderate-quality evidence). Women using medroxyprogesterone injections were less likely than those using levonorgestrel implants to discontinue the method (RR = 0.48; 95% CI, 0.39-0.60) or report adverse events (RR = 0.63; 95% CI, 0.44-0.90).

There are several limitations to the studies in this review.[1] Population-specific HIV incidence during the study timeframes were not included. None of the trials compared use of these contraception methods with no contraception or barrier methods, meaning baseline risks of HIV acquisition are unknown. In addition, the trials only looked at a few specific hormonal contraceptive methods; many commonly used formulations were not included. Cost and accessibility data were not reported. These factors limit the generalizability of findings to all contraception types or contraceptive users. As noted, it is not clear whether the patients in these studies were in serodiscordant relationships or using preexposure or postexposure prophylaxis.

According to World Health Organization and Centers for Disease Control and Prevention guidelines, women at risk of contracting HIV may safely use any reversible contraceptive method.[3,4] Hormonal contraception remains a safe, effective option for preventing pregnancy, and counseling should focus on integrating HIV prevention rather than limiting contraceptive choice based on HIV risk alone.

The practice recommendations in this activity are available at https://www.cochrane.org/CD015701.

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