### MANAGEMENT OF COMPLICATIONS WITH HORMONAL CONTRACEPTIVE METHODS: ELEVATED BLOOD PRESSURE

<table>
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<th>DEFINITION</th>
<th>Elevation of blood pressure while using estrogen-containing contraceptives may be related to the effects of estrogen or it may be due to any of the other reasons women develop hypertension. A clinically significant increase in blood pressure is seen in about 41.5 cases per 10,000 users of low-dose OCs. The risk may increase with duration of use. In these settings, estrogen must be discontinued because of the increased risk of stroke. Pill-induced blood pressure changes are reversible, but may persist for 3-6 months after pill discontinuation. Past hormonal contraceptive use and duration of use are not associated with high blood pressure in postmenopausal women.</th>
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| SUBJECTIVE | May include:  
3. New onset headache, nose bleeds.  
4. Medications (prescription, over-the-counter or recreational drugs) that may raise BP.  
5. Foods that may increase BP (licorice).  

Must exclude: Focal weakness, blurred vision, and chest pain |
| OBJECTIVE | Must include:  
1. BP$_S$ ≥ 140mm Hg or BP$_D$ ≥ 90mm Hg verified at least one additional time this visit with no smoking, caffeine or other stimulants used for 30 minutes prior to measurement (unless initial measurement ≥180/110 mm Hg which would prompt more immediate action).  
2. Document use of correct size blood pressure cuff.  
3. Weight, BMI.  

May include:  
1. Thyroid enlargement.  
2. Tachycardia, cardiac murmurs.  
3. Edema of extremities or face.  

Must exclude:  
1. Any focal weakness or paresthesia.  
2. Any other signs of stroke. |
| LABORATORY | May include: urinalysis for protein. |
| ASSESSMENT | Elevated BP in woman using estrogen-containing contraceptives. |
| PLAN | 1. If patient is currently symptomatic (severe headache, chest pain, or blurred vision) or BP$_S$ ≥ 180mm Hg or BP$_D$ ≥ 110mm Hg, refer to ER and advise her to immediately discontinue estrogen-containing contraceptives. Provide alternative method of birth control that does not contain estrogen. Progestin-only pills may be a good choice.  
2. If asymptomatic patient is already under treatment and usually has controlled hypertension, verify that she has taken her medications today.  
a. If patient has not taken antihypertensive medication(s) today and BP$_S$ < 160mm Hg or BP$_D$ < 100mm Hg (Stage 1), repeat BP.  
   1) Advise her to take her BP medication and have her repeat blood pressure in 24-48 hours in clinic or at local pharmacy, etc. Advise her to stop estrogen-containing contraceptives and provide an alternative method if she has any other cardiovascular risk factors, such as obesity, tobacco use, age >35 years or if her repeat BP does not normalize.  
   2) If she has no access to hypertensive medication at this time, advise her to stop using combination hormonal contraceptives and switch her to a method without estrogen (e.g.,... |
PLAN (Continued)

b. If patient has not taken antihypertensive medications today and her BP S 160-179mm Hg and/or BP D 100-109mm Hg (Stage 2), advise patient to take antihypertensive medication.
   1) Tell her to stop estrogen-containing contraception.
   2) Provide contraceptives without estrogen (e.g., progestin-only pills).
   3) Have her repeat BP in 24-48 hours in clinic or at local pharmacy, etc. She may be re-evaluated for estrogen-containing BCM in future cycles only if blood pressure elevation has resolved, and her use of antihypertensive medication improves in consistency and no co-morbid cardiovascular conditions exist.

c. If patient has taken her antihypertensive medications and her BPs is 140-159mm Hg and BP D 90-99mm Hg two times today with proper cuff size, discontinue estrogen-containing contraceptives unless MD approves continuation. Provide contraception without estrogen.

3. If asymptomatic patient has new onset high blood pressure (BP ≥ 140/90mm Hg) on estrogen-containing contraceptives, treatment depends upon severity of hypertension and presence of cardiovascular co-morbid conditions. Also consider possibility of white coat syndrome in new patients.
   a. If BP S is 140-159mm Hg and/or BP D is 90-99mm Hg, offer effective methods without estrogen. However, use of estrogen-containing contraceptives still permissible (if patient desires) while repeating BP every 48-72 hours 3 times, if patient is a non-smoker; age < 40; and she has no other co-morbid cardiovascular conditions (e.g., diabetes, obesity).
      1) If all repeat BP measurements BP S < 140mm Hg and BP D < 90mm Hg, offer patient opportunity to continue estrogen-containing contraceptives or to switch to more or equally effective method without estrogen. Repeat BP every month for 2 months.
      2) If any of repeat BP measurement has BP S ≥ 140mm Hg and/or BP D ≥ 90mm Hg but no measurement BP S ≥ 160mm Hg or BP D ≥ 100mm Hg, consult MD.
      3) If any repeat BP measurement BP S ≥ 160mm Hg or BP D ≥ 100mm Hg, discontinue estrogen-containing contraceptives and provide non-estrogen containing method. Refer for evaluation of hypertension.
   b. If BP S is elevated ≥140/90mm Hg and patient has proteinuria, diabetes, age > 40, obesity (BMI ≥ 30), smokes or has other co-morbid conditions, discontinue estrogen-containing contraceptives. Provide effective method without estrogen. Refer for evaluation of hypertension.
   c. If initial BP S ≥ 160mm Hg or BP D ≥ 100mm Hg with proper cuff size, discontinue estrogen-containing contraceptives. Provide an alternative effective contraceptive method. Refer for prompt hypertension evaluation and management.

PATIENT EDUCATION

1. Advise women that despite decades of pill use, no increased risk of clinically significant hypertension has been seen with use of the pill. However, women who do develop hypertension while using the pill may no longer be appropriate candidates for use of estrogen-containing contraceptives.

2. Stress importance of diet, exercise, and medication for successful hypertensive therapy to reduce long-term risk of CVD. Careful monitoring of BP is helpful. Both office, home and pharmacy BP monitoring options are available, but careful calibration is needed.

3. Counsel patient to go immediately to ER if she develops symptoms of hypertensive crisis (such as shortness of breath, chest pain, headache, blurred vision, nosebleed) while using CHCs.

4. Counsel patient that some women may be sensitive to estrogen and have increase in BP with estrogen-containing hormonal contraceptives. If that happens, she will be asked to consider using contraceptive options without estrogen.

5. Advise patient that she should maintain good BP control prior to any planned pregnancy.

6. Inform patient to avoid over-the-counter medications and excessive caffeine that could raise blood pressure.

7. Counsel women who smoke to stop.

REFER to MD/ER

1. Persistently elevated BP.

2. BP S ≥ 160mm Hg or BP D ≥ 100mm Hg.
3. Elevated BP with additional symptoms, (e.g., headaches, blurred vision, etc.).
4. Patient with HTN with additional risk factors for cardiovascular disease (e.g., age > 35, diabetes, BMI >30, or smoking).

**REFERENCES**