304 History of Preeclampsia

Definition/Cut-off Value

History of diagnosed preeclampsia.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self-reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Please see risk #345 *Hypertension and Prehypertension*, for a thorough overview of preeclampsia, including incidence, risk factors, signs and symptoms, prevention, and treatment.

Preeclampsia is defined as hypertension with onset during pregnancy, usually after 20 weeks gestation, and typically with proteinuria (high levels of protein found in urine). For some women, proteinuria does not occur; for these women, preeclampsia is diagnosed as hypertension with thrombocytopenia (low platelet count), impaired liver function, renal insufficiency (poor kidney function), pulmonary edema (excess fluid in the lungs), and/or cerebral or visual disturbances (brain and vision problems) (1). The most common type of hypertensive disorder during pregnancy, preeclampsia occurs in 3.4% of pregnancies in the United States and is associated with one maternal death per 100,000 live births in developed countries (1, 2). Worldwide, it leads to the death of over 60,000 women annually (3).

It is important to note that *postpartum* preeclampsia can also occur, regardless of whether it was present during pregnancy. It is usually diagnosed within 48 hours of delivery but can occur up to 6 weeks postpartum. Thus, women during this period should monitor for preeclampsia symptoms and contact their healthcare provider immediately if they occur. (1, 4)

Women with a history of preeclampsia are at greater risk for future hypertension (HTN), heart attack, stroke, congestive heart failure, metabolic disease, and postpartum depression; these risks increase with repeated incidence of preeclampsia and with preterm delivery (1, 2, 5, 6). Because women with a history of preeclampsia are at increased risk for HTN and related conditions, implementing lifestyle changes after delivery to help prevent HTN is crucial. Lifestyle measures to reduce the risk of HTN for women who are not pregnant include the following:

- Have blood pressure checked at least yearly or as recommended by one's healthcare provider. For those at risk of HTN, regularly monitoring blood pressure is crucial. Blood pressure levels greater than 180/120 mmHg are extremely dangerous and require immediate medical attention (7).

- Consume a diet consistent with the Dietary Guidelines for Americans or follow the Dietary Approaches to Stop Hypertension (DASH) eating plan. Details regarding the DASH eating plan can be found on the National Heart, Lung, and Blood Institute's website: www.nhlbi.nih.gov/health-topics/dash-eating-plan.
- Engage in regular physical activity.
- Achieve and maintain a healthy weight.
- Limit alcohol and avoid any use of tobacco, marijuana or illegal substances. (See risk #371 *Maternal Smoking* and risk #372 *Alcohol and Substance Use*.)

Currently, there is inconclusive scientific evidence on preventative measures for preeclampsia in future pregnancies. However, when dietary calcium is inadequate, research indicates adequate dietary calcium or supplementation (1.5-2 grams/day) may help prevent preeclampsia (1, 2, 3, 8). Dietary folate and folic acid supplementation during pregnancy has also been associated with lower risk of preeclampsia (6, 9).

Breastfeeding

Women who had preeclampsia face a greater risk of HTN later in life; however, longer breastfeeding duration has been found to reduce this risk. (10, 11). Unfortunately, women who had preeclampsia during pregnancy are more likely to not initiate breastfeeding or to stop breastfeeding earlier than women with normal blood pressure (10, 12). Some potential causes for this include greater incidence of preterm birth, low birth weight, caesarean delivery, exposure to medications not compatible with breastfeeding, and mother/infant separation (12).

Women with history of preeclampsia should be encouraged to breastfeed, unless contraindicated. If postpartum women require antihypertensive medications, medications should be chosen that are compatible with breastfeeding, if possible. It is thus very important for the mother to discuss her breastfeeding status and goals with her healthcare provider to determine the best infant feeding and medication plan.

Implications for WIC Nutrition Services

The WIC Program provides support to participants with a history of preeclampsia by offering nutritious food that are important components of a diet to help prevent HTN. WIC nutrition staff also offer nutrition education, counseling, and referrals. In addition, WIC staff can assist participants by:

Pregnant Women with History of Preeclampsia:

- Encouraging prenatal care as soon as possible and to attend all health care appointments.
- Providing information about the symptoms of preeclampsia (sudden weight gain, swelling of face or hands, upper abdominal pain, difficulty breathing, changes in vision (including seeing spots), severe headache, nausea, and/or vomiting) and of the importance of contacting their healthcare provider immediately if they occur. Also, inform them that preeclampsia can occur postpartum.
- Counseling them on healthy weight gain, prenatal vitamin use, and a nutritious diet, including adequate calcium intake. For women with low calcium intake, refer them to their healthcare provider to discuss whether a calcium supplement is appropriate. Please note that a low-sodium diet and/or weight loss is not recommended as treatment for HTN *during* pregnancy.
- Encouraging them to discuss individualized physical activity recommendations with their healthcare provider.

- Providing information on avoiding any use of alcohol, tobacco, marijuana or illegal substances, as well as offering substance use referrals. The WIC Substance Use Prevention Manual is available for additional guidance and referral resources (https://wicworks.fns.usda.gov/resources/wic-substance-use-prevention-guide).
- Referring to local home visiting programs for health monitoring and support, if available.

Postpartum Women with History of Preeclampsia:

- Informing them of the symptoms of postpartum preeclampsia and of the importance of contacting their healthcare provider immediately if they occur.
- Providing breastfeeding promotion and support, unless contraindicated. Encourage women to discuss their breastfeeding status and goals with their healthcare provider, especially if medications are prescribed.
- Encouraging them to attend all health care appointments, including their 4-6 week postpartum visit; to develop a plan for future pregnancies; to discuss health conditions and medication needs with their healthcare provider; and to have their BMI, blood pressure, lipids, and fasting glucose assessed yearly (3).
- Counseling them on achieving and maintaining a healthy weight, physical activity, following a diet consistent with the Dietary Guidelines for Americans or the DASH diet.
- Informing them that history of preeclampsia increases their risk of future HTN, cardiovascular disease, and stroke.
- Providing information on avoiding any use of alcohol, tobacco, marijuana or illegal substances, as well as offering substance use referrals. The WIC Substance Use Prevention Manual is available for additional guidance and referral resources (https://wicworks.fns.usda.gov/resources/wic-substance-use-prevention-guide).
- Referring them to their provider to discuss whether a calcium or folic acid supplement is appropriate, if intake of these nutrients seems inadequate.
- Referring to local home visiting programs, if available, for health monitoring and support.

References

1. American College of Obstetricians and Gynecologists [Internet]. Washington (DC): American College of Obstetricians and Gynecologists; c2013. Hypertension in pregnancy. 2013 [cited 2018 July]; [100 pages]. Available from: www.acog.org/~/media/Task%20Force%20and%20Work%20Group%20Reports/public/HypertensionPregnancy.pdf.
2. Khaing W, Vallibhakara SA, Tantrakul V, et al. Calcium and vitamin D supplementation for prevention of preeclampsia: a systematic review and network meta-analysis. Nutrients. 2017 Oct [cited 2019 Mar 5];9(10):1141. Available from: https://www.mdpi.com/2072-6643/9/10/1141.
3. Duhig K, Vandermolen B, Shennan A. Recent advances in the diagnosis and management of pre-eclampsia [version 1; referees: 2 approved]. F1000 Faculty Review. 2018 Aug 15 [cited 2019 Mar 5];7(F1000 Faculty Rev)242. Available from: https://doi.org/10.12688/f1000research.12249.1.

4. Centers for Disease Control and Prevention [Internet]. Atlanta (GA): Centers for Disease Control and Prevention, 2018. High blood pressure during pregnancy fact sheet. 2018 May 16 [cited 2018 July]. Available from: www.cdc.gov/bloodpressure/pregnancy.htm.

5. Mol BWJ, Roberts CT, Thangaratinam S, et al. Pre-eclampsia. The Lancet. 2015 Sept 2 [cited 2019 Mar 5];387(10022):999-1011. Available from: https://doi.org/10.1016/S0140-6736(15)00070-7.

6. Wen SW, Guo Y, Rodger M, et al. Folic acid supplementation in pregnancy and the risk of pre-eclampsia – a cohort study. PLoS ONE. 2016 Feb 22 [cited 2019 Mar 5];11(2): e0149818. Available from: https://doi.org/10.1371/journal.pone.0149818.

7. National Heart, Lung, and Blood Institute [Internet]. Bethesda (MD): National Institutes of Health. High blood pressure. [cited 2018 July]. Available from: www.nhlbi.nih.gov/health-topics/high-blood-pressure.

8. Lowensohn R, Stadler DD, Naze C. Current concepts of maternal nutrition. Obstetrical and Gynecological Survey. 2016 July [cited 2019 Mar 5];71(7):413-26. Available from: https://journals.lww.com/obgynsurvey/Fulltext/2016/07000/Current_Concepts_of_Maternal_Nutrition.18.aspx.

9. Wang Y, Zhao N, Qiu J, et al. Folic acid supplementation and dietary folate intake, and risk of preeclampsia. European Journal of Clinical Nutrition. 2015 Jan 28 [cited 2019 Mar 5];69:1145-50. Available from: https://www.nature.com/articles/ejcn2014295.

10. Demirci J, Schmella M, Glasser M, et al. Delayed lactogenesis II and potential utility of antenatal milk expression in women developing late-onset preeclampsia: a case series. BMC Pregnancy and Childbirth. 2018 Dec [cited 2019 Mar 5];18(1):68. Available from: https://doi.org/10.1186/s12884-018-1693-5.

11. Feltner C, Weber RP, Stuebe A, Grodensky CA, Orr C, Viswanathan M. Breastfeeding Programs and Policies, Breastfeeding Uptake, and Maternal Health Outcomes in Developed Countries. Comparative Effectiveness Review No. 210. (Prepared by the RTI International–University of North Carolina at Chapel Hill Evidence-based Practice Center under Contract No. 290-2015-00011-I.) AHRQ Publication No. 18-EHC014-EF. Rockville (MD): Agency for Healthcare Research and Quality. 2018 July [cited 2019 April 24]. Available from: https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/cer-210-breastfeeding-report_1.pdf.

12. Cordero L, Valentine CJ, Samuels P, et al. Breastfeeding in women with severe preeclampsia. Breastfeeding Medicine. 2012 Dec 10 [cited 2019 Mar 5];7(6):457-63. Available from: https://doi.org/10.1089/bfm.2012.0019.

Clarification

Self-reporting of "History of …" conditions should be treated in the same manner as self-reporting of current conditions requiring a physician's diagnosis, i.e., the applicant may report to the CPA that s/he was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self-diagnosis of a past condition should never be confused with self-reporting.