Hypertensive Disorders in Pregnancy

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18.1 Introduction

Hypertensive disorders of pregnancy constitute one of the major causes of maternal and perinatal morbidity and mortality worldwide. It has been estimated that pre-eclampsia complicates 2–8% of all pregnancies globally [1]. In the Philippines, HDP account for 36.7% of all maternal deaths [2] and remains as the second leading cause of maternal mortality from 1991 to 2006 according to the data culled from the Department of Health [2] which is much higher than the worldwide rate of 18% according to the WHO [3].

Hypertensive disorders of pregnancy can be sub-classified into four groups: chronic hypertension, gestational hypertension, preeclampsia, and superimposed preeclampsia in the setting of chronic hypertension as presented in the American College of Obstetricians and Gynecologists (ACOG) Guideline in 2013 [4]. The International Society for the Study of Hypertension in Pregnancy (ISSHP) has published guidelines on diagnosis to establish global unity of definition in referring to

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the various hypertensive disorders seen in pregnancy, with the most recent guidelines released in 2018 which include the category of "white coat hypertension" and "masked hypertension" [5].

Although each condition increases the risk of maternal and neonatal morbidity, the greatest risks are associated with a diagnosis of preeclampsia, either de novo or in the setting of chronic hypertension [6, 7]. Women with a history of preeclampsia have an elevated risk of cardiovascular disease in subsequent years. Preeclampsia has been linked by several systematic reviews and meta-analyses to the development of cardiovascular disease (hypertension, myocardial infarction, congestive heart failure), cerebrovascular events (stroke), peripheral vascular disease and cardiovascular mortality later in life [8, 9]. It is postulated that endothelial dysfunction, which has been linked to atherosclerosis, persists in women with a history of preeclampsia, years after an affected pregnancy [8].

The diagnostic criteria for these disorders vary somewhat among published international guidelines, the terms and definitions used in the Classification of Hypertensive Disorders of Pregnancy in the CPG on Hypertension in Pregnancy by the Philippine Obstetrical and Gynecological Society (POGS) in 2015 will be presented here. The classification system adapted by the POGS was based on the Task Force Report on Hypertension in Pregnancy by the ACOG published in November 2013. HDP has four categories as follows:

1. Preeclampsia-Eclampsia.
2. Chronic hypertension (of whatever cause).
3. Chronic hypertension with superimposed preeclampsia.
4. Gestational hypertension.

This classification system is very basic, precise, and practical and probably the most appropriate classification scheme for HDP that the obstetrician and general practitioner can use (Table 18.1).

Hypertension is diagnosed empirically when appropriately taken blood pressure (BP) exceeds 140 mmHg systolic or 90 mmHg diastolic. Korotkoff phase V is used to define diastolic BP.

Previously, incremental increases of 30 mmHg systolic or 15 mmHg diastolic above BP values taken mid-pregnancy were used as diagnostic criteria, even when absolute values were <140/90 mmHg. These incremental changes are no longer used to define hypertension, but it is recommended that such women be observed more closely [10].

Abnormal protein excretion during pregnancy is empirically defined as 300 mg/dL of protein or more in a 24-h urine collection [11, 12] or a protein-to-creatinine ratio of 0.30 or more [13]. When quantitative methods are not available or rapid decisions are required, a urine protein dipstick reading can be used. If urinalysis is the only available means of assessing proteinuria, overall accuracy is better when using 2+ as the discriminant value [14, 15].

Table 18.1 Classification of hypertension of pregnancy

Hypertensive disorder of pregnancy (HDP)	Criteria
Preeclampsia	Blood pressure
	• Systolic BP of 140 mmHg or more or diastolic BP of 90 mmHg or more on two occasions at least 4 h apart after 20 weeks of gestation in a woman with a previously normal blood pressure
	• Systolic BP of 160 mmHg or more diastolic BP of 110 mmHg or more (severe hypertension can be confirmed within a short interval (minutes) to facilitate timely antihypertensive therapy)
	And *proteinuria*
	• 300 mg or more per 24 h urine collection (or this amount extrapolated from a timed collection)
	Or
	• Protein/creatinine ratio of 0.3 mg/dL or more or
	• Dipstick reading of 2+ (used only if other quantitative methods not available)
	OR in the absence of proteinuria, new-onset hypertension with the new-onset of any of the following:
	• Thrombocytopenia: Platelet count less than 100,000 × 10^9/L
	• Renal insufficiency: Serum creatinine concentrations greater than 1.1 mg/dL or a doubling of the serum creatinine concentration in the absence of other renal disease
	• Impaired liver function: Elevated blood concentrations of liver transaminases to twice normal concentration
	• Pulmonary edema
	• New-onset headache unresponsive to medication and not accounted for by alternative diagnoses or visual symptoms
Eclampsia	• New-onset tonic-clonic, focal, or multifocal seizures in the absence of other causative conditions such as epilepsy, cerebral arterial ischemia and infarction, intracranial hemorrhage, or drug use
Chronic hypertension	• Hypertension of any cause that predates pregnancy. BP ≥ 140/90 mmHg before pregnancy or before 20 weeks gestation or both
Superimposed preeclampsia	• Chronic hypertension in association with preeclampsia. Others define it as worsening baseline hypertension accompanied by new-onset proteinuria or other findings supportive of preeclampsia
Gestational hypertension	• Systolic BP 140 mmHg or more or a diastolic BP of 90 mmHg or more, or both, on two occasions at least 4 h apart after 20 weeks of gestation, in a woman with a previously normal BP
	• Hypertension without proteinuria or severe features develops after 20 weeks of gestation and BP levels return to normal in the postpartum period (12 weeks postpartum)

18.2 Pathogenesis of Preeclampsia

Any hypertensive disorder of pregnancy can result in preeclampsia. It occurs in 35% of women with gestational hypertension and in 25% of women with chronic hypertension [16].

The underlying pathophysiology that results in the transition to or superimposition of preeclampsia is not well understood and is probably related to a mechanism of reduced placental perfusion inducing systemic vascular endothelial dysfunction.

There are thought to be two stages to cytotrophoblast invasion: the first involves invasion of the decidual segments of the spiral arteries, at around 10–12 weeks gestation; the second involves invasion of the myometrial segments at 15–16 weeks [17]. In preeclampsia, cytotrophoblast invasion of the myometrial segments is impaired: the effect is the spiral arteries remain narrow which restricts the blood supply to the fetus. The effect on the fetus becomes more significant as pregnancy progresses. Placental ischemia is thought to develop as a result of the abnormal cytotrophoblast invasion which leads to the release of placental factors and an imbalance of angiogenic factors thereby causing widespread endothelial dysfunction which characterizes preeclampsia [17].

18.3 Prevention Strategies

Women with any of the *high-risk factors* for preeclampsia (previous pregnancy with preeclampsia, multifetal gestation, renal disease, autoimmune disease, type 1 or type 2 diabetes mellitus and chronic hypertension) and those with more than one of the *moderate-risk factors* (first pregnancy, maternal age of 35 years or older, a body mass index >30, family history of preeclampsia, sociodemographic characteristics, and personal history factors) should receive 150 mg/day aspirin best given at bedtime, for preeclampsia prophylaxis initiated between 12 and 28 weeks of gestation (optimally before 16 weeks of gestation) and continuing until delivery (Table 18.2) [18].

Table 18.2 Clinical risk factors and aspirin use [18]

Level of risk	Risk factors	Recommendation
High	• History of preeclampsia, especially when accompanied by an adverse outcome	Recommend low-dose aspirin if the patient has one or more of these high-risk factors
	• Multifetal gestation	
	• Chronic hypertension	
	• Type 1 or 2 diabetes	
	• Autoimmune disease (i.e., systemic lupus erythematosus, antiphospholipid syndrome)	
Moderate	• Nulliparity	Consider low-dose aspirin if the patient has more than one of these moderate-risk factors
	• Obesity (BMI > 30)	
	• Family history of preeclampsia (mother or sister)	
	• Sociodemographic characteristics (African American race, low socioeconomic status)	
	• Age 35 years or old	
	• Personal history factors (e.g., low birth weight or small for gestational age, previous adverse pregnancy outcome, more than 10-year pregnancy interval)	
Low	• Previous uncomplicated full term delivery	Do not recommend low-dose aspirin

The use of high dose calcium supplementation of 1500–2000 mg/day is recommended for patients with adequate and inadequate calcium intake based on the meta-analysis by Hofmeyr et al. in 2014, there was a statistically significant reduction in hypertension with or without proteinuria in pregnancy and the risk for severe preeclampsia in calcium deficient patients was likewise decreased with high dose calcium intake [19].

18.4 Approach to Management

The goal of management of hypertension in pregnancy is to prevent significant cerebrovascular and cardiovascular events in the mother without compromising fetal well-being. After initial evaluation of the mother and the fetus, the BP measurement will dictate the need for urgent care or conservative management. Figure 18.1 shows the BP values with the corresponding management.

18.5 Severe Hypertension

Acute-onset severe hypertension (systolic BP of 160 mmHg or more or diastolic BP of 110 mmHg or more, or both) can occur in the prenatal, intrapartum, and postpartum period. It is accurately measured using standard techniques and is persistent for 15 min or more. The objectives of treating severe hypertension are to prevent

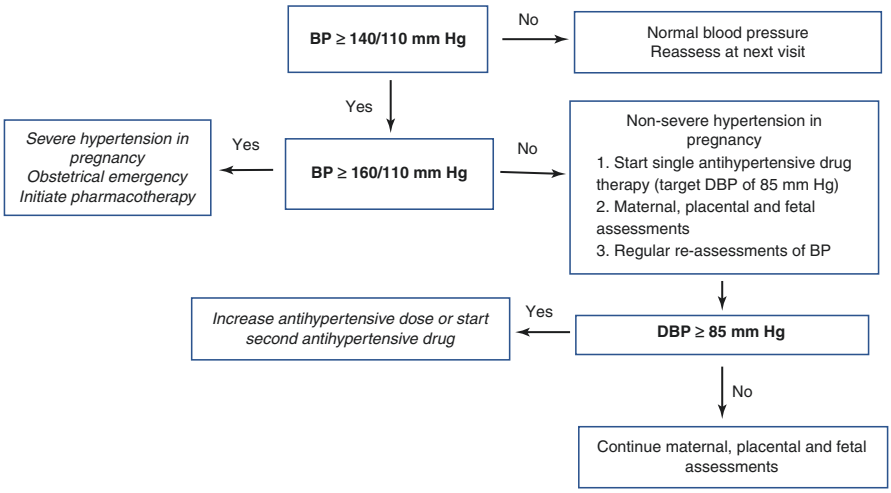

Fig. 18.1 Management of hypertension in pregnancy. (From Butalia, S et al. Hypertension Canada's 2018 Guidelines for the Management of Hypertension in Pregnancy. Canadian Journal of Cardiology 34 (2018) 526–531)

congestive heart failure, myocardial ischemia, renal injury or failure, and ischemic or hemorrhagic stroke [20]. The available literature suggests that antihypertensive agents should be administered within 30–60 min. However, it is recommended to administer antihypertensive therapy as soon as reasonably possible after the criteria for acute-onset severe hypertension are met.

The goal of treatment is not to normalize BP, but to achieve a range of 140–15-/90–100 mmHg in order to prevent repeated, prolonged exposure to severe systolic hypertension, with subsequent loss of cerebral vasculature autoregulation. Maternal stabilization should be done before delivery. When acute-onset, severe hypertension is diagnosed in the office setting, the patient should be expeditiously sent to the hospital for treatment.

The first line of treatment is intravenous (IV) hydralazine and labetalol. If labetalol alone is ineffective, switching to hydralazine is recommended. Extended-release oral nifedipine also may be considered as a first-line therapy, particularly when IV access is not available. Use of these drugs does not require cardiac monitoring (Table 18.3) [20].

A recent Cochrane systematic review that involved 3573 women found no significant differences regarding either efficacy or safety between hydralazine and labetalol or between hydralazine and calcium channel blockers. Thus, any of these agents can be used to treat acute severe hypertension in pregnancy [21]. Although parenteral antihypertensive therapy may be needed initially for acute control of BP, oral medications can be used as expectant management is continued. One approach is to begin an initial regimen of labetalol at 200 mg orally every 12 h and increase the dose up to 800 mg orally every 8–12 h as needed (maximum total 2400 mg/day). If the maximum dose is inadequate to achieve the desired BP goal, or the dosage is limited by adverse effect, then short-acting oral nifedipine can be added gradually. The extended-release nifedipine 30 mg oral tablet is an effective antihypertensive agent that is less likely to result in a rapid and severe fall in BP than the immediate-release capsule and provides antihypertensive effects over several hours [21].

Options for second-line therapy includes nicardipine by infusion pump. A review of studies of intravenous nicardipine for treatment of severe hypertension in pregnancy found that target BP was reached within 23 min in 70% of pregnant patients with severe hypertension and 91% reached target BP within 130 min, with no severe maternal or fetal side effects [22].

Treatment of severe hypertension (BP of ≥160/100 mmHg) is always recommended as it prevents serious maternal and fetal complications to set in. Initiating therapy in non-severe disease, however, is a subject of controversy. The NICE, ISSHP, and SOGC recommend therapy when the BP remains above 140/90 mmHg but SOGC suggests a lower threshold in patients with other comorbidities [21, 23–25]. The ACOG recommends conservative management of non-severe disease but stressed on the importance of control in the severe type [20].

Table 18.3 Antihypertensive agents used for urgent blood pressure control in pregnancy

Drug	Initial dose	Follow-up dose
Labetalol	20 mg IV gradually over 2 min	Repeat BP measurement at 10-min intervals:
		If BP remains above target level at 10 min, give 40 mg IV over 2 min
		If BP remains above target level at 20 min, give 80 mg IV over 2 min
		If BP remains above target level at 30 min, give 80 mg IV over 2 min
		If BP remains above target level at 40 min, give 80 mg IV over 2 min
		Cumulative maximum dose is 300 mg. If target BP is not achieved, switch to another class of agent.
	A continuous IV infusion of 1–2 mg/min can be used instead of intermittent therapy or started after 20 mg IV dose	Adjust dose within this range to achieve target BP
	Requires use of programmable infusion pump and continuous noninvasive monitoring of BP and heart rate	Cumulative maximum dose is 300 mg. If target BP is not achieved, switch to another class of agent
Hydralazine	5 mg IV gradually over 1–2 min	Repeat BP measurement at 20-min intervals:
	Adequate reduction of BP is less predictable than with IV labetalol	If BP remains above target level at 20 min, give 5 or 10 mg IV over 2 min, depending on the initial response
		If BP remains above target level at 40 min, give 10 mg IV over 2 min, depending on the previous response
		Cumulative maximum dose is 30 mg. If target BP is not achieved, switch to another class of agent
Nicardipine (parenteral)	The initial dose is 5 mg/h IV by infusion pump and can be increased to a maximum of 15 mg/h	Adjust dose within this range to achieve target BP
	Onset of action is delayed by 5–15 min; in general, rapid titration is avoided to minimize risk of overshooting dose	
	Requires use of a programmable infusion pump and continuous noninvasive monitoring of blood pressure and heart rate	
Nifedipine extended release	30 mg orally	If target BP is not achieved in 1–2 h, another dose can be administered
		If target BP is not achieved, switch to another class of agent
		Maximum daily dose is 180 mg

(continued)

Table 18.3 (continued)

Drug	Initial dose	Follow-up dose
Nifedipine immediate release[a]	10 mg orally	Repeat BP measurement at 20-min intervals:
	May be associated with precipitous drops in BP in some women, with associated FHR decelerations for which emergency cesarean delivery may be indicated. As such, this regimen is not typically used as a first-line option and is usually reserved only for women without IV access. If used, FHR should be monitored while administering short-acting nifedipine	If BP remains above target at 20 min, give 10 or 20 mg orally, depending on the initial response
		If BP remains above target at 40 min, give 10 or 20 mg orally, depending on the previous response
		If target BP is not achieved, switch to another class of agent
		Maximum daily dose is 180 mg

Adapted from: American College of Obstetricians and Gynecologists Committee on Obstetric Practice. Committee Opinion No. 767: Emergent therapy for acute-onset, severe hypertension during pregnancy and the postpartum period. Obstet Gynecol 2019
Bernstein PS, Martin JN Jr, Barton JR, et al. National Partnership for Maternal Safety: Consensus Bundle on Severe Hypertension During Pregnancy and the Postpartum Period. Obstet Gynecol 2017; 130:347

[a]We caution against use of immediate-release oral nifedipine, although some obstetric guidelines have endorsed its use as a first-line option for emergency treatment of acute, severe hypertension in pregnancy or postpartum (other options were labetalol and hydralazine), particularly when IV access is not in place. In most cases, use of immediate-release oral nifedipine will be safe and well tolerated; however, there is a risk of an acute, precipitous fall in BP, which may result in a reduction in uteroplacental perfusion. The immediate-release preparations are also associated with a higher incidence of headache and tachycardia. In non-pregnant adults, the package insert states that "nifedipine capsules should not be used for the acute reduction of BP"

18.6 Mild to Moderate Hypertension

A judicious approach to the treatment of mild (BP of 140–150 mmHg/90–100 mmHg) to moderate (BP of 150–159 mmHg/100–109 mmHg) hypertension is made with consideration on the patient's comorbidities and symptoms (e.g., headaches, visual disturbances).

The goal of antihypertensive therapy is not to normalize the BP, but to achieve a value that would prevent repeated prolonged exposure to severe systolic hypertension, with subsequent loss of cerebral vasculature autoregulation. It is important to avoid hypotension because the degree by which placental blood flow is autoregulated is not established, and aggressive lowering may cause fetal distress [9]. The Canadian guidelines recommend 130–150/90–105 mmHg in the absence of comorbid conditions. The NICE guidelines recommend aiming for 135/85 mmHg or less [25]. The ISSHP endorses an approach that seeks to control BP levels to 110–140/85 mmHg [24].

18.7 Pharmacologic Management

The choice of antihypertensive drug for initial therapy should be based on the characteristics of the patient, contraindications to a particular drug, and physician and patient preferences. The first-line drugs are methyldopa, calcium channel blockers, or beta blockers. Antihypertensives may be used to keep systolic BP at 130–155 mmHg and diastolic BP at 80–105 mmHg.

In a 2014 Cochrane Collaboration systematic review, antihypertensive medication use for non-severe hypertension in pregnancy (49 randomized trials; n 1/44,723) was associated with a halving in the risk of progression to severe hypertension (relative risk, 0.49; 95% CI, 0.40–0.60). The number needed to treat was 10 (95% CI, 8–13). This finding was consistent across all HDP ranges of conditions [26].

Initial antihypertensive therapy should be monotherapy from the following first-line drugs: oral labetalol, oral methyldopa, long-acting oral nifedipine, or other oral beta blockers (acebutolol, metoprolol, pindolol, and propranolol) [27]. A diastolic BP of 85 mmHg should be targeted for pregnant women receiving antihypertensive therapy with chronic hypertension or gestational hypertension [27]. A similar target could be considered for pregnant women with preeclampsia [27] (Fig. 18.1).

Additional antihypertensive drugs should be used if target BP levels are not achieved with standard-dose monotherapy. Add-on drugs should be from a different drug class chosen from first-line or second-line options (Table 18.4) [27].

For patients with chronic hypertension, it can be difficult to differentiate worsening of the hypertension from superimposed preeclampsia. Conditions that may indicate superimposed preeclampsia, that warrants a referral to a maternal fetal medicine specialist/perinatologist, include the following:

1. Acute, severe, and persistent elevations in blood pressure.
2. Sudden increase in baseline hypertension.
3. New-onset proteinuria or sudden increase in proteinuria (above the threshold for normal or a clear change from baseline).

Angiotensin converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) should NOT be given before conception and during the first

Table 18.4 Antihypertensive medications commonly used in pregnancy

First-line oral drugs (Grade C)	Second-line oral drugs (Grade D)	Medications to avoid
Labetalol	Clonidine	Angiotensin converting enzyme inhibitors[a] (Grade C)
Methyldopa	Thiazide diuretics	Angiotensin receptor blockers[a] (Grade D)
Long-acting oral nifedipine		
Other beta blockers (acebutolol, metoprolol, pindolol, and propranolol)		

From Butalia, S et al. Hypertension Canada's 2018 Guidelines for the Management of Hypertension in Pregnancy. Canadian Journal of Cardiology 34 (2018) 526–531

[a] Fetotoxicity of renal system

trimester of pregnancy because of evidence of teratogenicity (ACE inhibitor exposure increased the risk for cardiovascular and central nervous system anomalies). Likewise, they should NOT be used during the second and third trimesters of pregnancy because of evidence of fetopathy (fetal and neonatal death, renal failure, oligohydramnios, arterial hypertension, intrauterine growth restriction, respiratory distress syndrome, pulmonary hypoplasia, hypocalvaria, and limb defects).

18.8 Non-pharmacologic Management

Non-pharmacological management of women with the hypertensive disorders of pregnancy involves consideration of dietary interventions, lifestyle, and place of care [28]. Data on the role of dietary interventions and lifestyle changes have mainly focused on their role in prevention and not on women with established hypertension in pregnancy.

18.9 Dietary Interventions

Dietary interventions have been studied to curb weight gain in pregnancy, primarily among overweight and obese women [29, 30]. However, the objective was for prevention rather than treatment in hypertensive pregnant women. Actual weight loss is not recommended during pregnancy because of the potential adverse effects of catabolism and ketosis on fetal brain development.

A reduction in salt intake and the DASH diet were independently effective in lowering BP, and the effects of both were greater than the effects of either intervention alone. In a trial of sodium reduction and the DASH diet (i.e., Dietary Approaches to Stop Hypertension), both were shown to decrease BP [31]. Among non-pregnant subjects of whom 59% were women, the DASH diet lowered BP in all subjects, particularly those who were already hypertensive, and the BP reduction occurred regardless of pre-trial salt intake (that was high, intermediate, or low). Reducing the sodium intake from the high to the intermediate level reduced the SBP by 2.1 mmHg ($p < 0.001$) during the control diet and by 1.3 mmHg ($p = 0.03$) during the DASH diet. Reducing the sodium intake from the intermediate to the low level caused additional reductions of 4.6 mmHg during the control diet ($p < 0.001$) and 1.7 mmHg during the DASH diet ($p < 0.01$) [31].

18.10 Lifestyle Changes

It is common practice to recommend workload reduction or cessation, or stress management (e.g., meditation) when non-severe elevations in BP are found in association with chronic or gestational hypertension, or preeclampsia and outpatient care is continued. However, there is currently no evidence that these lifestyle changes improve pregnancy outcomes [28].

18.11 Place of Care

Outpatient care for women with hypertension in pregnancy should be reserved for women without severe disease. A full assessment of maternal and fetal well-being must be done to exclude women with severe hypertension or severe preeclampsia using Hypertension Canada's 2018 Guidelines for the Management of Hypertension in Pregnancy (Fig. 18.1).

Options for outpatient care include obstetric day units and antepartum home care that is delivered through structured antepartum home care program [28]. A woman's eligibility is dependent on the proximity of the hospital to her residence, a home environment that allows the home care team to provide the necessary maternal and fetal surveillance, a woman's likelihood of compliance, the lability of a woman's blood pressure, the absence of comorbid conditions, and no evidence of active progression of preeclampsia [28].

18.12 Management of Hypertension in Special Cases: Immediate Postpartum and Breastfeeding Periods

Blood pressure should be recorded shortly after birth and if normal again within 6 h. All women should have BP recorded and defer discharge for at least 24 h or until vital signs are normal and/or treated or referred. Any woman with an obstetric complication and/or newborn with complications should stay in the hospital until both are stable.

WHO [21] recommendations include:

1. In hospital stay for at least 24 h.
2. Checkup within 48–72 h of the birth and again 7–14 days and at 6 weeks postpartum.
3. All women should be reminded of the danger signs of preeclampsia following birth including headaches, visual disturbances, nausea, vomiting, epigastric or hypochondrial pain, feeling faint or convulsions.

Advise women with hypertension who wish to breastfeed that their treatment can be adapted to accommodate breastfeeding, and that the need to take antihypertensive medication does not prevent them from breastfeeding. Although no antihypertensive drugs are licensed for use in breastfeeding, since most evidence is based on observational studies and expert opinion, most antihypertensive medicines taken while breastfeeding only lead to very low levels in breast milk, so the amounts taken in by babies are very small and would be unlikely to have any clinical effect [22].

Most medicines are not tested in pregnant or breastfeeding women, so disclaimers in the manufacturer's information are not because of any specific safety concerns or evidence of harm. Hence, make decisions on treatment together with the woman, based on her preferences (Table 18.5).

As antihypertensive agents have the potential to transfer into breast milk, consider monitoring the BP of babies, especially those born preterm, who have

Table 18.5 Antihypertensive drugs used in pregnancy and lactation

	Atenolol	Captopril	Enalapril
Mechanism	Beta blocker	ACE inhibitor	ACE inhibitor
Pregnancy	Avoid in first and second trimester—associated with fetal growth restriction and bradycardia. Reduces uteroplacental blood flow	No—associated with severe fetal anomaly, fetal nephropathy, and intrauterine death	No—associated with severe fetal anomaly, fetal nephropathy, and intrauterine death
Breastfeeding	No known evidence of harm (NICE)	Manufacturers advise to avoid	Not for preterm infants
	Second line after labetalol	However recommended by SOGC	No evidence of harm (NICE)
		No known evidence of harm (NICE)	Particularly for women needing cardio/renal protection
Postnatal	Yes	Yes	Yes
Side effects	Risk of fetal growth restriction and bradycardia in pregnancy	Cough	Cough
Contraindications	Asthma		

NICE National Institute for Health and Care Excellence, *SOGC* Society of Obstetricians and Gynecologists of Canada

symptoms of low BP for the first few weeks. When discharged, advise women to monitor their babies for drowsiness, lethargy, pallor, cold peripheries, or poor feeding.

For women with hypertension in the postnatal period, if BP is not controlled with a single medicine, consider a combination of nifedipine or amlodipine and an ACE inhibitor either enalapril and captopril, which has been shown to be safe and effective in breastfeeding women. If this combination is not tolerated or is ineffective, consider either adding atenolol or labetalol to the combination treatment or swapping one of the medicines already being used for atenolol or labetalol. When treating women with antihypertensive medication during the postnatal period, use medicines that are taken once daily when possible. Where possible, avoid using diuretics or angiotensin receptor blockers to treat hypertension in women in the postnatal period who are breastfeeding or expressing milk.

For women with hypertension in the postnatal period who are not breastfeeding and who are not planning to breastfeed, treat them based on general guidelines on hypertension in adults.

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