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Review Article

Treatment Of Mild Chronic Hypertension During Pregnancy

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ABSTRACT

Hypertension in pregnancy is considered to be one of the commonest problems for expectant mothers along with infection and postpartum hemorrhage. Pregnancy induced hypertension is one of the major causes of death among women in the reproductive age group. Conventional antihypertensive drugs which are considered as safe and effective in the treatment of PIH are methyl dopa, labetalol, nifedipine and certain diuretics. Angiotensin converting enzyme inhibitors and angiotensin receptor blockers are contraindicated during the pregnancy as they produce teratogenicity. Lack of knowledge as well as awareness of the severity related to PIH is the most important factor for developing PIH related complication. There is a need of strategy following prenatal education and patient counselling conveying hazards related to preeclampsia. Importance of early detection and management approach should be emphasized to women as well as healthcare professionals. Research on hypertensive disorders of pregnancy requires continuous efforts with sufficient funding.

INTRODUCTION

One of the most significant phases of a woman's life, filled with benefits and the Nobel service of nature, is pregnancy. Pregnancy carries various hazards for both the mother and the baby, even though it is a normal physiological process and not an illness. Pregnant women typically have a high sense of self-worth and are optimistic about the future for their unborn child and other family members. Many women experience unpleasant surprise when confronted with a potentially fatal illness such as PIH, which can disrupt pregnancy and the course of labour, even if they feel well.

HYPERTENSION

The force that blood exerts on blood vessel walls is known as blood pressure, and the strength of this force is determined by both the blood vessel's resistance and the cardiac output. A blood pressure reading of more than 140 over 90 mmHg is referred to as hypertension, according to all medical criteria. This indicates that the diastolic measurement, which represents the pressure at which the heart relaxes and refills with blood, is

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above 90 mmHg, or the systolic reading, which represents the pressure at which the heart pumps blood throughout the body, is over 140 mmHg.

Hypertension (HTN) is considered one of the leading causes of increased cardiovascular disease. The 2017 American College of Cardiology (ACC) and American Heart Association (AHA) definition of HTN stages is:

- Normal blood pressure (BP): systolic BP is less than 120, and diastolic BP is less than 80.
- Elevated BP: systolic BP is 120 to 130, and diastolic BP is less than 80.
- Stage 1 HTN: systolic BP 130 to 139 or diastolic BP 80 to 89.
- Stage 2 HTN: systolic BP at least 140 or diastolic at least 90.
- Hypertensive crises: systolic BP over 180 and/or diastolic BP over 120.

RISK FACTOR FOR HYPERTENSION

SYMPTOMS OF HYPERTENSION INCLUDE

Dizziness, Chest Pain, Heart attack, Headaches, Bleeding Nose, Visual Changes, Shortness of Breath, Flushing or Blushing, Narrowing of blood vessels, Formation of plagues in the blood vessels.

CLASSIFICATION OF HYPERTENSION

Class I hypertension

Class I hypertension is that disorder which is unique to pregnancy, the constellation of preeclampsia/eclampsia. This is a disease that is seen mostly in first pregnancies and typically presents only after 20 weeks gestation. The majorities of cases of preeclampsia are mild and present close to term. Preeclampsia is a multi-system disorder characterized by hypertension, proteinuria, and varying degrees of thrombocytopenia, haemolytic anaemia, abnormal liver function tests, reduced renal function, and hyperuricemia.

Class II hypertension

Class II hypertension in pregnancy is that disorder which is completely unrelated to pregnancy, chronic hypertension. In this class, chronic hypertension of any etiology is included. Chronic hypertension unassociated with preeclampsia usually carries with it a minimal risk to the pregnant woman.

Class III hypertension

Class III hypertension in pregnancy is the combination of pre-eclampsia/eclampsia superimposed upon chronic hypertension. Because of the normal rise in blood pressure that occurs in the third trimester in pregnancy, diagnosis of this entity should never be based solely upon increase in blood pressure. Rather, criteria for this diagnosis should include such findings as new onset proteinuria, hyperuricemia, thrombocytopenia. Foetal complications of pre-eclampsia include intrauterine growth restriction, placental abruption and foetal distress. Pre-eclampsia often necessitates preterm delivery, and rarely can lead to foetal demise.

Class IV hypertension

Class IV hypertension is rare entity known as transient, gestational or late hypertension of pregnancy. Patients with this class of hypertension have blood pressures >140/90 toward term but never develop any other evidence of preeclampsia and their blood pressure resolves rapidly postpartum. To make the diagnosis of class IV hypertension, documentation of normal blood pressure both prior to and after pregnancy is required.

SIGNS AND SYMPTOMS OF PRE-ECLAMPSIA

A blood pressure of more than 160/110, proteinuria exceeding 5 grammes per 24 hours, and indications of end organ damage (hepatocellular injury with an ALT greater than twice the upper normal limit, hematologic dysfunction with platelet counts fewer than 100,000/L or DIC, placental dysfunction with oligohydramnios, etc.) are all considered to be part of "severe pre-eclampsia." Additional symptoms include swelling or edoema, particularly in the hands and face. Originally thought to be a significant indicator of pre-eclampsia, only hypertension and proteinuria are now recognised as the primary indicators in modern medicine (Sharma et al., 2010). Heartburn and epigastric discomfort are common pregnancy problems.

SIGNS AND SYMPTOMS OF ECLAMPSIA

Pregnancy-induced hypertension and proteinuria usually manifest in patients prior to the commencement of the eclampsia convulsion, which is the hallmark of the condition. Prior to the convulsion, there may be other cerebral symptoms such headaches, nausea, vomiting, and cortical blindness. Furthermore, as the pathophysiological process progresses, other organ symptoms such as liver failure, pulmonary edoema, oliguria, elevated liver enzymes, hemolysis, and low platelet count may manifest. Because of the eclamptic toxins and intrauterine growth retardation, the foetus may already be affected and experience foetal discomfort. There could be placental abruption and haemorrhage.

DIAGNOSIS

1. Measurement of BP

- BP should be measured by traditional method of BP measurement using mercury sphygmomanometer
- BP should be measured by keeping arm at the level of heart while women in the sitting position.
- Make an appropriate cuff size (the length should be of 1.5 times the circumference of the arm) and use.
- Start recording blood pressure. For diastolic BP indication, Korotkoff phase V should be used.
- If BP is consistently higher in one arm, the arm with the higher values should be used for all BP measurements.

Abnormality	Mild	Severe
Diastolic blood pressure	< 100 mm Hg	110 mm Hg or higher
Proteinuria	Trace to 1+	Persistent 2+ or more
Headache	Absent	Present
Visual disturbances	Absent	Present
Upper abdominal pain	Absent	Present
Oliguria	Absent	Present
Convulsion (eclampsia)	Absent	Present
Serum creatinine	Normal	Elevated
Thrombocytopenia	Absent	Present
Liver enzyme elevation	Minimal	Marked
Fetal growth restriction	Absent	Obvious
Pulmonary edema	Absent	Present

2. Measurement of proteinuria

- All pregnant women should be assessed for proteinuria.
- Urinary dipstick testing may be used for screening of proteinuria, when suspicion of preeclampsia is low.

3. Basic laboratory tests recommended for monitoring patients with hypertension in pregnancy

Hemoglobulin and hematocrit	Hemoconcentration supports diagnosis of gestational hypertension with or without proteinuria. It indicates severity. Levels may be low in very severe cases because of hemolysis

Platelet count	Low levels < 100,000 × 109/L may suggest consumption in the microvasculature. Levels correspond to severity and are predictive of recovery rate in post-partum period, especially for women with HELLP syndrome
Serum AST, ALT	Elevated levels suggest hepatic involvement. Increasing levels suggest worsening severity
Serum LDH	Elevated levels are associated with hemolysis and hepatic involvement. May reflect severity and may predict potential for post- partum recovery, especially for women with HELLP syndrome
Proteinuria (24-h urine collection)	Standard to quantify proteinuria. If exceeding 2 g/day, very close monitoring is warranted. If an excess of 3 g/day, delivery should be considered
Urinalysis	Dipstick test for proteinuria has significant false-positive and false- negative rates. If dipstick results are positive (≥ 1), a further investigation is needed, including albumin/creatinine ratio. Negative dipstick results do not rule out proteinuria, especially if DBP ≥ 90 mmHg
Albumin to Creatinine ratio (ACR)	Can be quickly determined in a single spot urine sample. A value < 30 mg/mmol reliably rules out proteinuria. A value of ≥ 30 mg/ mmol should possibly be followed by a 24-hour urine collection
Serum uric acid	Elevated levels aid in differential diagnosis of gestational hypertension and may reflect severity
Serum creatinine	Levels drop in pregnancy. Elevated levels suggest increasing severity of hypertension; assessment of 24-h creatinine clearance may be necessary

MANAGEMENT OF HYPERTENSION IN PREGNANCY

Non drug treatment

It is recommended to have a regular diet free of salt, especially in the days leading up to birth, since salt restriction can cause a low intravascular volume. Women who already have hypertension, however, should stick to any salt-restricted diet they already have. Unless contraindicated, aerobic exercise three to four times a week (30–60 min/session) is advised to avoid weight gain and minimise negative pregnancy outcomes, such as hypertensive diseases and gestational diabetes mellitus. When started in the first trimester and under supervision, low- to moderate-intensity exercise is especially beneficial in preventing the development of gestational hypertension and diabetes during pregnancy.

Treatment of Severe Hypertension

There is disagreement over what constitutes severe hypertension in pregnancy, with levels ranging from 160 to 180 mmHg/> 110 mmHg. Nonetheless, it is generally agreed upon that hospitalisation is necessary if a pregnant woman has an SBP of greater than 170 or a DBP of greater than 110 mmHg. The anticipated timing of delivery influences the choice of antihypertensive medication and how it is administered. It is strictly forbidden to use ACE inhibitors, ARBs, or direct renin inhibitors. For oral therapy, methyldopa, nifedipine XL, or betamethasone can be utilised. Intravenous labetalol appears to be the recommended medication if parenteral therapy is required. Since intravenous hydralazine has greater side effects than other medications, it should no longer be considered the first medicine of choice. Instead, it should only be used in situations where labetalol is contraindicated or when other treatments have failed. Nonetheless, recent evaluations of hydralazine's safety and effectiveness revealed that it was similar to both nifedipine and labetalol. With the second dose, oral short-acting nifedipine should only be used as a temporary solution, such as until intravenous access is available.

Hypertensive Emergencies

Pre-eclampsia/eclampsia, SBP ≥ 160 mmHg, DBP ≥ 110 mmHg, or severely raised blood pressure

(DBP > 120 mmHg), together with progressive acute end-organ damage including acute myocardial infarction, pulmonary edoema, respiratory failure, or aortic dissection, are considered hypertensive emergencies in pregnancy. SBP should be 140–150 mmHg and DBP should be 90–100 mmHg. There should be an instantaneous 15–25% drop in blood pressure. Because sodium nitroprusside is converted into thiocyanate and discharged in the urine, prolonged use of the medication is linked to a higher risk of foetal cyanide poisoning. As a result, sodium nitroprusside needs to be saved for the most situations and used as little as possible. Nitro-glycerine is the recommended medication for pre-eclampsia related to pulmonary edoema; it is administered as an intravenous infusion at a rate of 5 μg/min and increased gradually every 3-5 minutes to a maximum dose of 100 μg/min.

Treatment of Mild-to-Moderate Hypertension

The preferred medications are methyldopa, labetalol, and calcium antagonists (nifedipine has the most data available). Beta-blockers may cause foetal bradycardia, growth retardation, and hypoglycaemia; the kind and dosage should be carefully chosen, and atenolol should be avoided as it has been demonstrated to be fetotoxic. Overall, beta-blockers seem to be less effective than calcium antagonists. Because of the possibility of synergism, calcium-channel blockers should not be taken concurrently with magnesium sulphate, since this could result in hypotension.

Treatment of Pregnancy induced Hypertension

1. **Labetalol**

If the women can tolerate oral therapy, an initial 200mg oral dose can be given. This can be done immediately before venous access is obtained and so can achieve as quick a result as an initial intravenous dose. This should lead to a reduction in blood pressure in about half an hour. A second oral dose can be given after 30 minutes if needed

If there is no initial response to oral therapy or if it cannot be tolerated, control should be repeated boluses of labetalol 50mg followed by a labetalol infusion. Bolus infusion is 50mg (=10ml of labetalol 5mg/ml) given over at least 5 minutes.

2. **Hydralazine**

Hydralazine is given as bolus infusion 2.5mg over 5 minutes measuring the blood pressure every 5minutes. This can be repeated every 20 minutes to a maximum dose of 20- 40mg as needed. Orally being with 10mg 4 times daily for 2-4 days; then 25 mg, 4 times daily for 3-5 days than 50 mg 4 times daily (maximum 300mg/day).

3. **Nifedipine**

Nifedipine should not be given sublingually to a woman with hypertension. Profound hypertension can occur with concomitant use of nifedipine and parenteral magnesium sulphate and therefore nifedipine should be prescribed with caution in woman with severe pre- eclampsia. Oral nifedipine is currently available in 3 different preparations, capsule, modified release (12 hours twice daily dose) and modified release (24 hours, once daily dose) tablets.

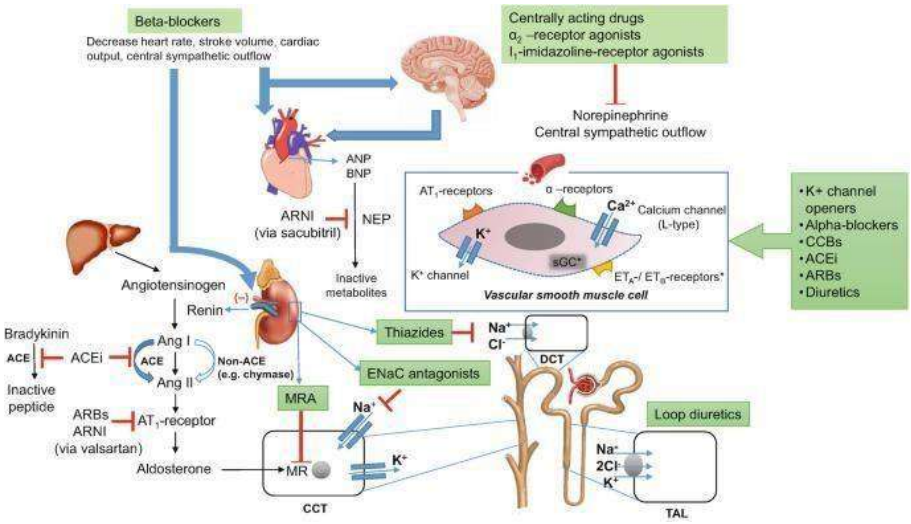
4. **Magnesium sulphate**

Magnesium sulphate is given as a loading dose followed by a continuous infusion for 24 hours or until 24 hours after delivery. The loading dose is 4g magnesium sulphate i.v. over 5-10 minutes. The maintenance dose is 1g magnesium sulphate i.v per hour. To avoid drug prescription and administration errors, magnesium sulphate should be administered in premixed solutions. Pre-mixed magnesium sulphate is available in two preparations: Magnesium sulphate 4g in 50ml. This should be administered intravenously over 10 minutes as loading or bolus dose. Magnesium sulphate 20mg in 500ml. This should be administered via a volumetric pump at a rate of 25ml/hour (i.e. 1g/hour of magnesium sulphate).

TREATMENT OF HYPERTENSION

- ACE inhibitors including enalapril and lisinopril relax blood vessels and prevent kidney damage.
- Angiotensin-2 receptor blockers (ARBs) including losartan and telmisartan relax blood vessels and prevent kidney damage.
- Calcium channel blockers including amlodipine and felodipine relax blood vessels.
- Diuretics including hydrochlorothiazide and chlorthalidone eliminate extra water from the body, lowering blood pressure.

ANTIHYPERTENSIVE DRUGS



TYPE OF ANTIHYPERTENSIVE DRUG

- **Beta blockers**

Examples of beta blockers include atenolol, metoprolol, nadolol, pindolol, carvedilol and labetalol. These agents block the beta receptors of the heart and lower the force the heart pumps with. Beta blockers also lower the heart rate.

- **Calcium channel blockers**

These agents block the flow of calcium in the muscles of the blood vessels causing them to relax and dilate. This reduces the pressure against which the heart has to pump and, in turn, the blood pressure. Examples of these agents are amlodipine, nifedipine, nicardipine and verapamil.

- **Angiotensin converting enzyme (ACE) inhibitors**

These drugs stop the action of angiotensin II, which normally narrows blood vessels. Blocking its action dilates blood vessels and reduces blood pressure. Some examples of these agents are enalapril, captopril and ramipril.

- **Angiotensin receptor blockers**

These drugs act by preventing the action of angiotensin II on its receptor and therefore exert similar effects to as ACE inhibitors. Examples include drugs such as losartan, candesartan, and telmisartan.

- **Centrally acting sympatholytic**

These are substances that act on the central nervous system to induce blood vessel dilation and, in turn, blood pressure. Drugs in this class include methyldopa and clonidine. Methyldopa is suitable for pregnant women with hypertension.

- **Alpha blockers**

These act by blocking the alpha-adrenergic receptors, which relaxes and dilates the blood vessels. This reduces the pressure against which the heart has to pump and therefore the blood pressure.

- **Vasodilators**

Drugs of this class include hydralazine and minoxidil which relax the smooth muscle of the blood vessels causing the vessels to relax and dilate. Again, this reduces the pressure against

which the heart has to pump and therefore the blood pressure.

- **Diuretics (Thiazides)**

Act on Kidneys to increase excretion of Na and H2O, decrease in blood volume, decrease in COP & hence decrease in BP.

METHOD AND MATERIAL

TRIAL DESIGN AND OVERSIGHT

The investigator-initiated Chronic Hypertension and Pregnancy (CHAP) project was a multicenter, pragmatic, open-label, randomized, controlled trial conducted at more than 70 recruiting sites in the United States. The trial was conducted on the basis of a cooperative agreement with the CHAP Trial Consortium, which included both clinical and data coordinating centers. The trial protocol (available with the full text of this article at NEJM.org) was approved by a protocol re- view committee appointed by the National Heart, Lung, and Blood Institute (NHLBI) and by the institutional review board at each trial center. The trial was overseen by a steering committee and an independent data and safety monitoring board appointed by the NHLBI. All the authors assume responsibility for the accuracy and completeness of the data and for the fidelity of the trial to the protocol.

ELIGIBILITYAND BLOOD-PRESSURE MEASUREMENT

The complete inclusion and exclusion criteria are provided in the protocol and in the Supplementary Appendix, available at NEJM.org. Pregnant women with a known or new diagnosis of chronic hypertension and a viable singleton fetus before 23 weeks' gestation were eligible. New chronic hypertension was defined as a systolic blood pressure of 140 mm Hg or higher, a diastolic blood pressure of 90 mm Hg or higher, or both on at least two occasions at least 4 hours apart before 20 weeks' gestation in patients without chronic hypertension. Known chronic hypertension was confirmed by a documented elevation in blood pressure and previous or current antihypertensive therapy, including lifestyle measures. Blood-pressure levels that were required for randomization depended on whether the patient had currently been prescribed and had adhered to an antihypertensive medical regimen. If the patient had not received an antihypertensive drug within 24 hours before measurement, a systolic pressure of 140 to 159 mm Hg or a diastolic pressure of 90 to 104 mm Hg was required. If the patient had been receiving antihypertensive therapy, a systolic pressure of less than 160 mm Hg and a diastolic pressure of less than 105 mm Hg was required. Patients with a systolic blood pres sure of less than 140 mm Hg and a diastolic pressure of less than 90 mm Hg were also eligible to participate. Gestational age was determined ac- cording to the criteria of the American College of Obstetricians and Gynecologists (ACOG).15 The results of ultrasonography were required before randomization. Included in the exclusion criteria were severe hypertension or a blood-pressure level warranting antihypertensive treatment with more than one medication (indicating the risk of severe hyper- tension), known secondary hypertension, multiple fetuses, prespecified high-risk coexisting illnesses or complications that may warrant treatment at a lower blood-pressure level, obstetric conditions that increase fetal risk, and contraindications to first-line antihypertensive drugs recommended for use in pregnant women.

INTERVENTIONSAND PROCEDURES

A protocol for accurate, reproducible, and pragmatic measurement of blood pressure during clinic visits was used for screening and enrollment and to guide any adjustments to medications. Blood pressure was measured with an automated device (Omron HEM-907) at randomization for ancillary research purposes; clinical caregivers were unaware of these measurements unless they had been used as the patient's blood pressure for clinical management (clinic blood pressure). Re-

search staff members were trained and certified to implement this protocol, with regular orientation and guidance also provided to clinical staff. The clinic blood-pressure levels and other documented levels (e.g., during urgent care or hospital admissions) were used to adjudicate trial out- comes, including preeclampsia. (Details regarding all trial interventions and procedures are provided in the Supplementary Appendix.) Patients were randomly assigned to a blood- pressure goal of less than 140/90 mm Hg (active treatment) or to standard (control) treatment, in which antihypertensive therapy was withheld or stopped at randomization unless severe hyper- tension (systolic pressure, ≥160 mm Hg; or diastolic pressure, ≥105 mm Hg) developed. If severe hypertension was identified in the control group, the target blood pressure for treatment was also less than 140/90 mm Hg. Trial-group assignments were implemented regardless of whether the patients were currently taking an antihypertensive medication. A Web- based randomization program was generated with the use of SAS software, version 9.4 (SAS Institute), and assignments were stratified according to site, with variable block sizes of 2, 4, and 6 to conceal the trial-group assignments. All the patients provided written informed consent.

OUTCOMES

The primary outcome was a composite of pre- eclampsia with severe features occurring up to 2 weeks after birth, medically indicated preterm birth before 35 weeks' gestation (i.e., because of maternal or fetal illness, not spontaneous labor or membrane rupture), placental abruption, or foetal or neonatal death. Preeclampsia was defined ac- cording to ACOG criteria.3 Of note, a blood pressure of 160/100 mm Hg or greater in the absence of signs and symptoms of preeclampsia, proteinuria, or laboratory abnormalities was not sufficient to diagnose preeclampsia with severe features.

The primary outcome was assessed in five prespecified subgroups according to hypertension treatment status at baseline (newly diagnosed, diagnosed and receiving medication, or diagnosed but not receiving medication), race or ethnic group, diabetes status, gestational age at enrolment (<14 weeks vs. ≥14 weeks), and body-mass index (the weight in kilograms divided by the square of the height in meters) according to three categories (<30, 30 to <40, or ≥40).

STATISTICAL ANALYSIS

The data and safety monitoring board approved a final sample size of 2404 (1202 per group), which was reduced from the originally planned enrolment of 4700 patients, as sufficient to detect a relative reduction of 33% in the incidence of the composite primary-outcome events. In these calculations, we assumed a baseline incidence of primary-outcome events of 16% in the control group, 10% nonadherence to the trial regimen or crossover, and 5% loss to follow-up, with 85% power and a two-sided alpha level of 0.05. A blinded reassessment of the sample size that was performed after 800 patients had completed the trial revealed that the incidence of the primary outcome was at least 30%. Thus, we determined that the enrolment of 2404 patients would suffice to detect relative effect sizes of 25% or more. This sample size would provide more than 80% power to detect a relative difference of 35% or more in the incidence of small-for-gestational- age birth weight, assuming a baseline incidence as low as 10%. The primary analyses were performed in the intention-to-treat population. When the primary composite or birth-weight outcomes were undetermined (e.g., withdrawal from the trial before delivery), multiple imputation methods with five replicates were used. Details regarding these analyses are provided in the Supplementary Ap- pendix.17 Multivariable log-binomial models were applied to each replicated set, and assessments of treatment effect were pooled.

Adjusted risk ratios, 95% confidence intervals, and tests of statistical significance were calculated. Complete-case analyses were also conducted among all the patients with available data regarding the primary outcome and small-for-gestational-age birth weight; risk ratios and 95% confidence intervals were calculated. We also determined the number of patients who would need to be treated to pre- vent one primary-outcome event and the 95% confidence interval.

We replicated the primary-outcome analyses using logistic regression to estimate odds ratios according to the prespecified statistical plan. In addition, we conducted per-protocol analyses (in which crossovers were included in the group as treated) and survival analyses to account for the time that patients had been enrolled in the trial; both analyses included patients who had been lost to follow-up.

DISCUSSION

Active treatment with a blood pressure target of less than 140/90 mm Hg was linked to better pregnancy outcomes in pregnant women with mild chronic hypertension than a control strategy of no antihypertensive treatment, unless the diastolic pressure was 105 mm Hg or higher or the systolic blood pressure was 160 mm Hg or higher. Actively treated women were less likely to experience placental abruption, foetal or neonatal death, medically recommended preterm birth at less than 35 weeks' gestation, or one or more primary outcome events of severe preeclampsia. The primary analysis results were in line with the estimations of the primary outcome's component parts and the majority of secondary outcomes, such as the composites of preeclampsia, preterm birth, and serious maternal or neonatal problems. It was found that in order to avoid one primary outcome event, 14–15 patients would require active therapy. When it came to the safety outcome, there were no discernible group differences for newborns weighing less than the 10th or 5th percentile for gestational age. Following randomization, there didn't seem to be much of a mean blood pressure difference between the groups.

CONCLUSION

About 10% of pregnancies become complicated due to HDPs, which also raise the risk of morbidity and death for the mother, foetus, and baby. The diagnosis of hypertension during pregnancy is predicated on blood pressure measurements (systolic DBP > 90 mmHg and/or SBP ≥ 140 mmHg), preferably taken twice in a medical facility or office. To prevent needless therapy, ambulatory blood pressure monitoring should be utilised to rule out white coat hypertension. The risk of superimposed pre-eclampsia increasing by 25% is linked to pre-existing hypertension. These women should start taking aspirin at a low dose between weeks 12 and 36–37. All women at high risk of pre-eclampsia—those with diabetes, autoimmune diseases, chronic renal disease, or history of hypertension during a previous pregnancy—are advised to take the same preventive intervention. Women at moderate risk of pre-eclampsia should also be prescribed a low dosage of aspirin.It is recommended that obese women refrain from gaining more than 6.8 kg of weight. Hospitalisation is recommended in cases of SBP ≥ 170 or DBP ≥ 110 mmHg, as these conditions are widely recognised as emergencies. The anticipated timing of delivery should guide the choice of antihypertensive medications and the method of administration. Intravenous labetalol appears to be the medication of choice for nearly everyone. Methyldopa, oral labetalol, and calcium antagonists (long-acting nifedipine has the most data) are the recommended medications for mild to severe hypertension. The CHIPS and CHAP projects suggest lowering the cutoff point to 140/90 mmHg for the start of medication treatment for hypertension in pregnancy. If a caesarean birth is not indicated due to an obstetric condition,

vaginal delivery is the preferable method for pregnant women with hypertension. For women with mild pre-eclampsia or prenatal hypertension, induction of labour after the 37th week is associated with a better outcome than the expectant approach. In the postpartum period, pre-eclampsia can sometimes occur suddenly. If certain symptoms (such as headache, epigastric discomfort, vision abnormalities, dyspnea, edoema in the hands, foot, or face) are accompanied with an increase in blood pressure, this condition should be recognised.

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