

Postpartum Hypertension, are we doing the Correct Management? A Review Article

Pathiraja M^{1*} and Rathnayaka D²

¹Post graduate trainee in Obstetrics and Gynecology, Ministry of Health, Sri Lanka

²Consultant Obstetrician and Gynecologist, St John of God Hospital, Australia

***Corresponding author:** Dr. Madushan Pathiraja, MBBS, MD, MRCOG, Post graduate trainee in Obstetrics and Gynaecology, Ministry of Health, Sri Lanka, Tel: 94772532828; Email: madushan_pathi@yahoo.com

Received Date: January 30, 2020; **Published Date:** February 17, 2020

Abstract

Postpartum hypertension is a common problem in obstetrics practice; however knowledge on management of these patients is poor among medical practitioners. Hypertensive disorders in pregnancy can affect one out of ten in pregnant women. Further, 44% of eclamptic fits happen in the postnatal period specially, within first 48 hours of delivery. Apart of fetal complication patient have similar risk of all the complications due to preeclampsia similar to antenatal period.

Keywords: Postpartum Hypertension; Blood Pressure; Preterm Delivery

Review Article

There is an enough evidence to suggest that women are at high risk of hypertension related complications especially in the postpartum period. Postpartum period refers to first six weeks following delivery. Usually there is an increase of systolic and diastolic blood pressure in first few days after delivery by 4-6 mmHg. Even diastolic blood pressure can go beyond the 100 mmHg, due to due to re accumulation of fluids from third space compartment to the vascular space. However, some time we would see reduction in the blood pressure in the first few days especially due to reduction of the fluid volume during the delivery time [1].

The patient with chronic hypertension, patient who received treatment for pregnancy-induced hypertension would have remained high blood pressure in postpartum period. The hypertensive women who had preterm delivery are at highest risk of sustained hypertension in the postpartum period, which is nearly 75%. Matthys et al repost the study among 151 women who admitted to hospital with

postpartum preeclampsia, 16% had ecliptic episodes, 9% developed pulmonary oedema and one maternal death due to complication of eclampsia [2]. Due to lack of sleep, more attention on new born baby, symptoms of preeclampsia might get easily mask.

The patient with systolic blood pressure of 160 mmHg or above should vigorously treat as these can cause intracerebral haemorrhage. Among the women who enter the postpartum period with antihypertensive, majority of them were treatment free after three to six months' time [3]. A systematic review which includes 4561 records among postpartum women found that, there is clear evidence of calcium-channel blockers, vasodilators and beta-blockers lower the blood pressure in postpartum period, but no clear answer to which was most effective and should, therefore, be preferentially prescribed [4]. An ideal antihypertensive should full fill the following criteria. It should be effective in controlling the blood pressure and diurnal variation,

safe in breast feeding, less maternal side effects, minimal dosage. Oral labetalol, nifedipine, amlodipine, enalapril are the commonly used drugs. The patients who are on methyl dopa need to switch to alternative drug following two days of delivery. The summary of comparison between commonly used antihypertensive in postpartum illustrate in table 1.

Beta Blockers

The most commonly used drugs are the labetalol and atenolol. The labetalol has dual action via alpha and beta antagonistic action. Immediately, it decreases the blood pressure by decrease the systemic vascular resistance. With long term it reduces the heart rate and it maintain the cardiac output via increase the stroke volume. These should avoid in-patient with asthma and cardiac failure. The patient who develops the symptoms of respiratory difficulty after the treatment should change to alternative medication. Intravenous labetalol can use in emergency situation.

Calcium Channel Blockers

Nifedipine is the commonly used agent. It work as calcium channel blocker (specific to L type calcium channel) and also it has a nonspecific activity towards other voltage gated calcium channels. Further, it can act as antagonist of mineralocorticoid receptors. It use as a tocolytic agent in preterm labour. The other alternative drug is amlodipine. It is an angioselective calcium channel blocker and inhibits calcium ion influx across the cell membrane. This leads to vasodilatation and reduction of peripheral vascular resistance.

Angiotensin Converting Enzyme (ACE) Inhibitors

Commonly used outside of pregnancy, especially those with proteinuria and renal disease. Angiotensin 1 gets converted to Angiotensin 11 via angiotensin converting enzyme. Angiotensin 11 has effect on increase the inotropy, chronotropy, catecholamine release, aldosterone effect and vasopressin effect. Therefore, they constrict the blood vessels and increase the blood pressure. ACE inhibitors will decline the level of Angiotensin 11 and leads to less vasoconstriction and decrease the blood pressure.

Hydralazine

It is belongs to Hydrazinophthalazine class of drug. It has a direct action of smooth muscle dilatation via vasodilator property. Vasodilators will reduce the peripheral resistance and lower the blood pressure. Due to reflex sympathetic

stimulation may increase the heart rate and cardiac output may leads to angina symptoms? Hydralazine is not use as a primary agent to control the blood pressure and only in emergency situation.

Methyl dopa is a common antihypertensive which use in antenatal period. It is a central acting alpha adrenergic agonist. Since it has a risk of postpartum depression not used in postpartum hypertension.

Diuretics are rarely used as antihypertensive agents in puerperium and only limited to pulmonary oedema. It causes severe postural hypotension.

Uterine curettage for early recovery from preeclampsia in postpartum period is remaining controversial. Gamaliel, et al. report that there were no statistical difference with regard to systolic and diastolic blood pressure among patient with preeclampsia and eclampsia in before and after the surgery. And procedure does not improve the clinical or laboratory values [4]. The National Institute for health and care excellence (NICE) guidelines suggest that all postpartum women need to check their blood pressure within six hours and all should be aware of the symptoms of preeclampsia [5]. It needs medical review of systolic more than 150 mmHg and diastolic more than 90 mmHg. The women who received the anti-hypertensive agents should be closely monitored. The use of modified obstetric early warning system (MOEWS) is very important to pick up of deteriorating of symptoms early.

The NICE has recommended for more frequent blood pressure monitoring for preeclampsia women and keep more days as in patient in hospital [5]. At the time of discharge blood pressure should be less than 150 /100 mmHg and community team should be informed. After patient was discharge from the hospital community midwife should measure the blood pressure more regularly. If any symptoms or signs of severe preeclampsia, or blood pressure more than 160/100 mmHg should sought the medical advice. Most women who start treatment in the post natal period will require antihypertensive for 2 weeks and the preexisting patient will continue for more than puerperium. Those who need treatment for more than six weeks needs further assessment to establish of underlying disease process and they should refer to a physician for further advice. Fisher, et al. report a study on women who diagnose to have preeclampsia and renal impairment, renal biopsy suggest one third had underlying chronic disease problem [6]. The entire patient should advice on future recurrence of pregnancy induce hypertension in subsequent pregnancy (Table 2). All the patients should be on Aspirin 75-150 mg daily dose from 12 weeks of gestation until delivery [7].

Medication	Dose	Contraindication	Common Side-effects	Rare Side-effects
Labetalol	100-200mg QDS	Cardiac failure Heart blocks Asthma Severe bradycardia Cardiogenic shock	Headache Dizziness Dyspepsia Dyspnea Ejaculatory failure	Fever Muscle cramp Hyperkalemia Hepatotoxicity.
Nifedipine (SR)	10-40mg BD	Aortic stenosis	Feel Dizzy and faint Cough Tachycardia	Renal impairment
Enalapril	5-20 mg BD	Acute kidney injury	Increase serum creatinine, Dizziness Hypotension	Dry cough Angioedema
Amlodipine	5-10 mg OD	Aortic stenosis	Peripheral oedema Dizziness Palpitation Flushing	Depression Hepatitis Jaundice
Hydralazine	5- 10 mg IV or IM	High output cardiac failure Severe tachycardia	Headache Tachycardia Palpitation	Flushing Angina-symptoms

Table 1: Drugs used in postpartum hypertension.

Prevalence of hypertensive disorders in pregnancy	Pregnancy induce hypertension (PIH)	Preeclampsia	Chronic Hypertension
Pregnancy induce Hypertension	11-15%	7%	3%
Preeclampsia Delivery after 37 weeks	6%-12%	16%	2-5%
Preeclampsia Need delivery 34-37 weeks	6-20%	23%	2-5%
Preeclampsia Need delivery 28-34 weeks	30-40%	33%	2-5%

Table 2: Risk of recurrence of hypertensive disorders in subsequent pregnancy.

Conflicts of Interest

There are no conflicts of interest.

References

- Gouglas KA, Redman CW (1994) Eclampsia in the United Kingdom. *BMJ* 309(6966): 1395-400.
- Mayheys LA, Coppage KH, Lambers JR, Sibai BM (2004) Delayed postpartum preeclampsia: an experience of 151 cases. *An J Obstet Gynecol* 190(5): 1464-1466.
- Berks D, Steegers EA, Molas M, Visser W (2009) Resolution of hypertension and proteinuria after preeclampsia. *Obstet Gynecol* 114(6): 1307-1314.
- Alexandra E Cairns, Louise Pealing, James MN Duffy, Nia Roberts, Katherine L Tucker, et al. (2017) Postpartum management of hypertensive disorders of pregnancy: A systematic review. *BMJ Open* 7(11).
- Mc Lean G, Reyes O, Velarde R (2017) Effects of postpartum uterine curettage in the recovery from preeclampsia and eclampsia. A randomized control trial. *Pregnancy Hypertension* 10: 64-69.
- National Institute for Health and Clinical Excellence (2019) The management of Hypertensive Disorders in Pregnancy. London: NICE.

7. Fisher KA, Luger A, Spargo BH, Lindheimer MD (1981) Hypertension in pregnancy: clinical-pathological correlation and remote prognosis. *Medicine (Baltimore)* 60(4): 267-276.