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Antihypertensive drugs

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ANTIHYPERTENSIVE
DRUGS

BACKGROUND

Hypertensive disorders of pregnancy (HDP) are major causes of severe morbidity, long-term disability, and death of mothers and babies. Globally, about 10 percent of women experience increased blood pressure (BP) during pregnancy, and 2-8 percent of pregnancies are complicated by pre-eclampsia. Among them, 10 percent develop severe pre-eclampsia and eclampsia. About 10-20 percent of all maternal deaths are from eclampsia, the second leading direct cause of maternal mortality.

Expanding proven, high impact practices is critical to accelerating a global reduction in maternal and perinatal morbidity and mortality. The need is especially acute in low- and middle-income countries (LMICs) of sub-Saharan Africa and South Asia, where 65-85 percent of the populations are rural and have limited access to life-saving care. Sixteen percent of all maternal deaths in LMICs are from HDP, with women in LMICs being 300 times more likely to die from eclampsia than those in developed countries.

The etiology of pre-eclampsia and eclampsia (PE/E) is unclear, but it is a multi-system disorder impacting cardiovascular and neurological functions. What is clear is PE/E-related deaths are preventable with early detection during antenatal care through BP monitoring and management with antihypertensive drugs and magnesium sulphate ($MgSO_4$).

$MgSO_4$ is used for preventing and treating convulsions from severe pre-eclampsia and eclampsia, respectively, and is one of 13 essential commodities identified by the UN Commission on Life-saving Commodities for Women and Children. However, $MgSO_4$ alone does not address the complex signs and symptoms that women with pre-eclampsia experience. Although safe, low-cost, and effective, $MgSO_4$ is an anticonvulsant but it does not treat hypertension. If it is not stabilized, there is an increased risk of major adverse cardiovascular events, such as stroke and death. It is critical to use antihypertensive drugs to lower high BP.

MANAGING HYPERTENSION DURING PREGNANCY

Most women with pre-eclampsia have hypertension, meaning the systolic BP is above 140mmHg and the diastolic BP is above 90mmHg. Hypertension can be mild ($\geq 140/90$ - $< 150/100$ mmHg), moderate ($\geq 150/100$ - $< 160/110$ mmHg), or severe ($\geq 160/110$ mmHg). Moderate and severe hypertension require treatment with antihypertensive drugs.

Highlights

1. Pre-eclampsia is a condition in pregnant women marked by an increase in blood pressure and protein in urine after 20 weeks gestation.
2. Eclampsia is a life-threatening condition characterized by convulsions in women with PE.
3. PE/E and other hypertensive disorders in pregnancy increase the risk of pre-term births.
4. Providing high quality and regular (ideally eight contacts) antenatal care improves the prevention and early detection of pre-eclampsia and can prevent its progression to eclampsia.
5. Prescribing low-dose aspirin and calcium to at-risk women can prevent pre-eclampsia and eclampsia.
6. Pre-eclampsia and eclampsia can be managed by administering antihypertensive drugs and magnesium sulphate ($MgSO_4$).
7. $MgSO_4$ is the safest and most effective treatment for severe PE/E, and is one of 13 UN Life-Saving Commodities for Women and Children.
8. Improved prevention, increased detection, and effective treatment of PE/E can prevent unnecessary maternal and newborn deaths.



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A Cochrane systematic review found that antihypertensive drugs lower the risk of developing severe hypertension. The WHO recommends that every health facility have adequate oral and intravenous antihypertensive drugs in the antenatal, labor, and maternity units. If the systolic blood pressure is 160 mmHg or more or the diastolic blood pressure is 110 mmHg or more, prescribe antihypertensive drugs. There are four antihypertensive drugs – labetalol, hydralazine, methyldopa, and nifedipine – that are safe to use during pregnancy.

Despite being safe, low-cost, effective, and commonly available, LMICs, countries and programs do not procure antihypertensive drugs in quantities large enough to meet the demand for managing high BP in pregnancy. However in 2016, members of Maternal Health Caucus of the Reproductive Health Supplies Coalition agreed anti-hypertensives should be part of the essential medicines list for maternal health.

Challenges in ensuring that women have access to antihypertensive drugs to control their BP during pregnancy include the following:

- National task shifting policies do not allow management of HDP at the primary healthcare (PHC) facility level, even though they are mandated to administer a loading dose of $MgSO_4$ prior to referral.
- Stock out of antihypertensive drugs at PHC facilities
- Additional cost of training PHC health workers to monitor BP and prescribe antihypertensive drugs correctly.
- Lack of support for task shifting from professional bodies.

The problem lies with national policies that enable or prohibit task shifting to providers at primary healthcare facilities. In many countries, the administration of a loading dose of $MgSO_4$ to women with PE/E has been shifted to lower cadre providers (e.g., the community health extension workers), but the control of hypertension during pregnancy, including PE/E, is not included in national task shifting policies.

CONCLUSION

HDP, including PE/E, is a major cause of maternal and fetal mortality and morbidity globally. To prevent these deaths, early detection of the disease during pregnancy and appropriate use of antihypertensive drugs (and $MgSO_4$, when indicated) are recommended for women with severe hypertension during and after pregnancy. It is, therefore, crucial that the four antihypertensive drugs that are safe to use in pregnancy - labetalol, hydralazine, methyldopa, and nifedipine - are included on the essential MNH drug list and distributed to every health facility in every country.

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The Ending Eclampsia project seeks to expand access to proven, underutilized interventions and commodities for the prevention, early detection, and treatment of pre-eclampsia and eclampsia and strengthen global partnerships.