EDITORIAL

Current Management of Hypertensive Disease in Pregnancy

Hypertensive disorders occur in 6-8% of all pregnancies with the incidence varying with geographic location. Studies conducted at Kenyatta National Hospital have noted a prevalence of 5.4% of hypertensive disease and 0.56% for eclampsia(1). Pregnant mothers with hypertension are predisposed towards the development of potentially lethal complications, notably abruptio placentae, disseminated vascular coagulation, cerebral haemorrhage, hepatic failure and acute renal failure. The baby may have intra-uterine growth retardation, suffer the consequences of being born too early, or die in utero. Causes of hypertensive disease especially pre-eclampsia remain unknown(2-4).

The most important consideration in the classification of diseases in which blood pressure rises abnormally is differentiation of hypertensive disorders that antedate pregnancy from a potentially more ominous disease peculiar to pregnancy, pre-eclampsia. Pre-eclampsia is a pregnancyspecific syndrome of reduced organ perfusion related to vasospasm and activation of the coagulation cascade. Although our understanding of this syndrome has increased, the criteria used to identify the disorder remain subject to confusion and controversy(3).

There are several classifications used currently with the National High Blood Pressure Education Programme Working Group Report on High Blood Pressure in Pregnancy recommendations being the most applied. These were last updated in 2000 (3,5). The condition is categorised as follows: -

Chronic Hypertension: Blood Pressure (BP) higher than 140/90 mmHg noted before pregnancy or, if noted after 20 weeks gestation, does not resolve post-partum. If proteinuria sets in then this is classified as superimposed pre-eclampsia.

Pre-eclampsia – eclampsia complex: This occurs after 20 weeks, when BP is >140/90 mmHg. Evidence shows that increaments of 30 mmHg systolic or 15 mmHg diastolic even when absolute values are <140/90mmHg are not likely to have adverse outcomes hence-so are no longer classified as pre-eclampsia however such women must be observed if proteinuria or hyper uricaemia are also present >6 mg/dl(3).

Mild Pre-eclampsia: Diastolic BP 90-109 mmHg with proteinuria upto 2+, severe pre-eclampsia when diastolic BP is 110 or above with proteinuria 3+ or more.

Eclampsia: Is defined as the occurence in a woman with pre-eclampsia of seizures that cannot be attributed to other causes. However it should be remembered that a small percentage of women with eclampsia have normal BP, thus pregnant women who fit should be treated for eclampsia until another diagnosis is confirmed(5)

Accurate measurement of blood pressure is crucial. Until recently the consensus favoured the point of muffling of Korotkoff sound but obstetrics has come in line with the rest of the world and now diastolic BP is taken as disappearance of sound (Korotkoff phase V) and the cuff should encircle at least $^3/_4$of the circumference of the arm and the value if high should be repeated at an interval of at least four hours but not later than one week. (5,6). Proteinuria is defined as urinary excretion of 0.3 gm protein in a 24-hour specimen or 1 + reading, on a dipstick. It is recommended that, if possible, diagnosis of proteinuria be based on a 24 hour sample(3).

Oedema occurs in far too many women with normal pregnancy as to be a discriminant factor; consequently it has been abandoned as a marker from classification schemes. Studies have shown that pregnant women without oedema or with early or late onset oedema, have similar incidence of hypertension(3,6). Pre-eclampsia superimposed on chronic hypertension tests the skills of the clinicians and a principle of high sensitivity and unavoidable over diagnosis is appropriate.

Prevention of pre-eclampsia: The ability to prevent pre-eclampsia is limited by lack of knowledge of its underlying cause. Prevention has focused on identifying women at higher risk, followed by close clinical and laboratory monitoring to recognise the disease process in its early stages. These women can then be selected for more intensive monitoring or delivery. Although these measures do not prevent pre-eclampsia, they may be helpful in preventing some adverse maternal and foetal sequelae.

Use of low dose aspirin-to prevent pre-eclampsia: In a small study conducted at Kenyatta National Hospital, use of low dose aspirin led to a reduction in pregnancy induced hypertension and pre-eclampsia in primigravidae who were at risk of hypertension(7). Overall evidence from meta analysis of 39 trials has demonstrated that anti-platelet drugs, largely low dose aspirin, have small-to-moderate benefits when used for prevention of pre-eclampsia(8).

Calcium supplementation: In a recent study at KNH, Gachuno noted no significant reduction in the incidence of pre-eclampsia, or prevention of perinatal mortality and morbidity in patients with known risk of pregnancy induced hypertension who were given 1gm calcium daily(9). The Cochrane database evaluation notes that studies show a modest reduction in high BP with calcium supplementation in women with high risk of hypertension and low baseline dietary calcium(10).

Usually the progression of pre-eclampsia from mild to

severe is slow, but in some cases the progression may be fulminant. Thus, for clinical management pre-eclampsia should be over diagnosed to prevent maternal and perinatal morbidity and mortality primarily through timing of delivery(3).

The standard work up for patients with pre-eclampsia includes haemoglobin, haematocrit, serum creatinine, uric acid, transaminase, albumin levels, lactic acid dehydrogenase, blood smear, coagulation profile (some of these rule out haemolysis and hepatic involvement). These tests are useful for monitoring progression and specifically organ involvement.

Assessment of foetal well being includes daily monitoring of foetal movements with more specific tests such as non-stress test, ultrasonographic assessment of foetal activity and amniotic fluid volume.

Mild pre-eclampsia may be followed up as an outpatient bi-weekly and the patient admitted if this is not possible. Monitoring should be done for foetal and maternal condition and the mother and her family should be counselled on the. danger signs of severe pre-eclampia or eclampsia. Additional periods of rest should be encouraged but there should be no restriction on diet, especially salt and the use of anticonvulsants, anti-hypertensives, sedatives or tranquillisers has not been shown to improve perinatal outcome. Diuretics should only be used for pulmonary oedema or congestive cardiac failure(5).

Antihypertensive therapy: This is indicated when blood pressure is dangerously high or rises suddenly in women with pre-eclampsia, especially intrapartum. Antihypertensive agents can be withheld as long as maternal blood pressure is only mildly elevated. Some experts suggest treatment for persistent diastolic BP > 105 mmHg others advise withholding treatment until diastolic BP reaches 110(4,5). For adolescents whose diastolic pressures were recently <75 mmHg, treatment for persistent diastolic of 100 mmHg may be considered.

In a review of hypertensive women with a selection criterion of BP of 90-109 mmHg, a total of 40 studies involving 3,797 women where antihypertensive drug with placebo or no anti-hypertensive was compared and no clear differences in outcome were noted. The reviewers concluded that it remains unclear whether antihypertensive drug therapy for mild hypertension during pregnancy is worthwhile(11). In a study by El -Hassan appearing later in this journal, shows the use of methyldopa prevented the progress of mild PET to severe pre-eclampsia, and there was no change in the mortality, birth weight or neonatal outcomes (14). This study used the diastolic BP at Korotkoff 4 and not 5.

When treatment is required the ideal drug that reduces pressure to a safe level should act quickly, reduce BP in a controlled manner, not lower cardiac output, reverse utero-placental vascular constriction and result in no adverse maternal or foetal effects. The drugs to be used are hydrallazine I/V bolus, labetalol IV, nifedipine orally. Hydrallazine is the drug of choice.

Severe PET and eclampsia are to be managed similarly with the exception that delivery must occur within 12 hours of onset of convulsions in eclampsia and all cases of severe pre-eclampsia should be managed actively since signs and symptoms of "impending eclampsia" (blurred vision, hyper-reflexia) are unreliable and expectant management is not recommended(5). Foetuses of gestational age less than 34 weeks may benefit from corticosteroid administration.

Prolonged ante-partum management of women with severe pre-eclampsia is possible for a select group of women with gestational age less than 32 weeks and such management may prolong pregnancy with use of anti-convulsant and anti-hypertensive therapy with decrease in perinatal morbidity and mortality. This should be attempted in centres equipped to provide close maternal and fetal surveillance and delivery is indicated in worsening maternal symptoms, lab evidence of end organ dysfunction or deterioration of fetal condition.

Route of delivery: Vaginal route is preferable to Caesarean Section (C/S) for women with pre-eclampsia because it avoids the stress of surgery to the multiple physiological aberrations. Induction should be aggressive once decision has been made for delivery. Delivery should be aimed at 24 hours of the decision to induce labour and C/S should be for obstetric indications.

Studies have shown that in early onset severe pre-eclampsia in selected cases induction of labour has been shown not to be detrimental to neonatal outcome (12). In eclampsia delivery should occur within 12 hours of the onset of convulsions. Labour may be induced with prostaglandin pessary or amniotomy and C/S should be performed for all obstetric indications or for unfavourable cervix or when delivery is not anticipated in 12 hours. Ergometrine should not be given to women with severe pre-eclampsia and eclampsia because it increases the risk of convulsions and cerebrovascular accidents.

Anti-convulsant therapy: There is a universal agreement that women with eclampsia should receive anti-convulsant therapy and the drug of choice is magnesium sulphate. This is continued for 24 hours post delivery or the convulsion whichever occurs last(13). Other anti-convulsants like diazepam or phenytoin should only be used if magnesium sulphate is not available. There is no clear agreement concerning the prophylactic use of magnesium sulphate in women with pre-eclampsia. The ongoing MAGPIE trial, a multicentre controlled randomised trial of magnesium sulphate versus placebo for women with pre-eclampsia is being carried out worldwide (14). The results of this study will provide clear evidence of the role of prophylactic anticonvulsant.

Cerebral imaging (MRI or CT) is not indicated in uncomplicated eclampsia. However imaging is necessary to exclude haemorrhage and other serious abnormalities in women with focal neurological deficits or prolonged coma.

Post-partum counselling and follow up: In women whose hypertension develops during pregnancy should be carefully evaluated during the immediate post-partum months and counselled with respect to future gestation and remote cardio-vascular risks.

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