

HYPERTENSION IN PREGNANCY. DO THESE PATIENTS REQUIRE PREFERENTIAL TREATMENT? A STUDY CONDUCTED ON 8,743 ADMISSIONS IN UNIVERSITY HOSPITALS

Firouzeh Akbari Asbagh,* MD and Zahid

Hussain Khan,** MD

ABSTRACT— This study was conducted on 8,743 pregnant women, who reported to the labour units of University Hospitals from January 1993 till January 1995. Out of this influx of pregnant women, only 762 had pregnancy induced hypertension (PIH), an incidence approximating 8.71%. Mild and moderate cases of preeclampsia formed 78.35% and severe preeclampsia was only 21.65% of the entire and established cases of PIH. We had only one maternal mortality and one case of convulsive episode. Five patients had to undergo predate Caesarian section (CS). Most of our patients fell within the age range of 20-25 years. The findings accumulated from this study is presented with an accepted protocol of anesthetic management. The study was aimed at providing statistical analysis of these high risks obstetric cases. An attempt was made to find and explore a logical panacea, which would possibly allay the anxieties and apprehensions of the obstetricians and anesthesiologists catering for these patients with their complicated and erratic pathophysiology.

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INTRODUCTION

Hypertension continues to be the most common and highly prevalent complication during pregnancy with an incidence ranging between 5-10% (1) and accounts for maternal and prenatal mortality and morbidity around the globe (1,2,3). Pregnancy induced hypertension, if not

diagnosed in time and managed promptly and energetically, can bring in its wake disastrous maternal and fetal complications. Maternal and fetal well-being is at stake in severe preeclampsia and in such cases, termination of pregnancy is the only logical and plausible option to ensure maternal and fetal safety. In case, normal vaginal delivery (NVD) is not practically feasible because of obstetric problems or coexisting medical complications, caesarian section is warranted to overcome the complicated and fatal course of the pregnancy. Caesarian section (CS) coupled, of course, with the correct choice of anesthesia and further compounded with preoperative complications is not an easy and smooth ordeal but requires 100% precision and vigilance.

The conventional antihypertensive drugs are not used on the valid assumption that they would imitate or worsen cerebral ischemia by causing a significant fall in the cerebral perfusion pressure (CPP). The ever present risks of jeopardizing fetal well-being by decreasing placental perfusion and disturbing renal function, by causing precipitous falls in renal blood flow, should always be anticipated while using antihypertensive drugs. Such episodes however, are commonly encountered in patients with malignant hypertension (diastolic pressure >120 mmHg) and in those with markedly contracted plasma volume (hematocrit > 42%). Treatment, however, should ascertain that the systolic blood pressure (SBP) is kept within the range of 140-150 mm Hg, and the diastolic blood pressure (DBP) within the range of 90-100 mm Hg (1). Another option would be to make

*Assistant Professor, Department of Obstetrics & Gynecology,
**Assistant Professor, Department of Anesthesiology, Faculty of
Medicine, Tehran University of Medical Sciences, Tehran, Iran.

sure that the mean arterial pressure (MAP) is not allowed to fall 20% below its baseline value. Epidural anesthesia without coagulopathy is generally recommended (4,5,6), but still there are some who are skeptic about it.

MATERIALS AND METHODS

A retrospective study was conducted on 8,743 admissions of pregnant women between 1993-1995. Patients who had passed 20 weeks of gestation and those who fell within the age range of 15-45 years were included in the study. Patients were divided into two groups based on their blood pressure estimations. Those with SBP between 140 and 159 mmHg and or DBP between 90 and 109 mmHg were dubbed as mild preeclamptic whereas those with SBP > 160 mm Hg and or DBP > 110 mmHg were categorized as cases of severe preeclampsia. Proteinuria was considered significantly important if it were > 300 mg/24 hours. Generalized edema carried sufficient weight in our study as opposed to ankle edema that had no clinical significance.

In our cases of severe preeclampsia, patients also exhibited a host of other symptoms such as headache, epigastric pain and blurred vision.

Laboratory investigations included hematocrit, liver enzymes, uric acid, platelet count, 24-hour urinary creatinine, serum bilirubin and alkaline phosphates. Boluses and infusions of magnesium sulphate were given to all severe preeclamptic during the first 24 hours of admission and delivery was conducted during this period. If the DBP was found > 110 mmHg, hydralazine in incremental dosages of 5-10 mg was employed every half hour till the blood pressure was stabilized. During hydralazine therapy, the blood pressure was controlled every five minutes.

RESULTS

Out of 8,743 pregnant admissions at the maternity home, 762 were unequivocal cases of PIH, revealing an incidence of 8.71%. Multipara formed 450 cases against primipara who were 312, showing a distribution of 59% and 41%, respectively.

Out of the aforementioned cases of PIH, severe preeclampsia totalled 165 (21.65%) whereas all the rest, that is, 597 cases, (78.35%) safely fell within the category of mild and moderate preeclampsia (Table 1).

The commonest clinical finding encountered in all cases of severe preeclampsia was proteinuria (39.72%). Other symptoms seen in the order of frequency were edema, headache and blurred vision (Fig. 1).

We had one maternal mortality in the severe preeclamptics (0.13%). Premature deliveries and prenatal mortality accounted for 0.65% and 0.78%, respectively (Fig.2).

Table 1. Age distribution and the percentage recovered.

Age (y)	Number of patient	Percentage
15-19	93	12.20
20-24	280	36.74
25-29	179	23.49
30-34	131	17.19
35-39	60	7.87
40-45	19	2.47

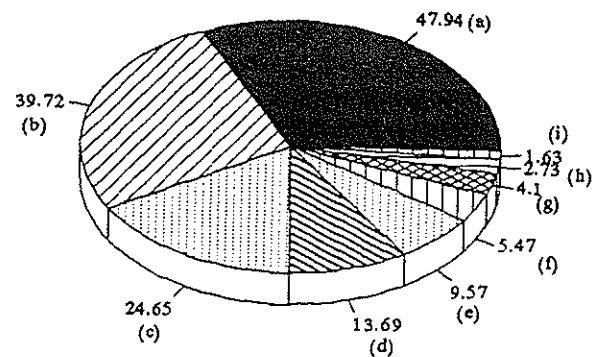


Fig. 1. (a) Oedema, (b) Proteinuria, (c) Vertigo, Headache, Nausea, (d) Hematuria, (e) Bilirubinemia, (f) Hyperuricemia, (g) Alkaline phosphatase, (h) Convulsion, Abruptio placentia.

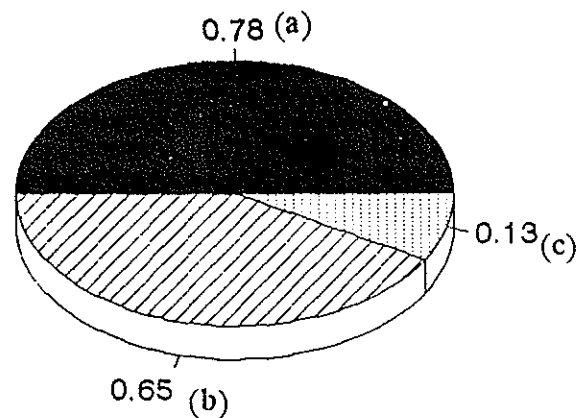


Fig. 2. (a) Prematurity, (b) Maternal Mortality, (c) Perinatal Mortality.

DISCUSSION

It is the cherished hope and aspiration of every woman to conceive, whether she represents the elite class of the society or the poor and illiterate one. However, not every pregnancy has smooth going and at times unfortunate pathological events come into play and usher in a cascade of intractable phenomena of hypertension, proteinuria, generalized edema, elevated uric acid levels and a derangement of liver enzymes. At times this picture gets further complicated by additional symptoms such as visual disturbances, intractable headaches and epigastric pain. This syndrome of preeclamptic toxemia had the propensity of spreading its tentacles to almost every organ of the body making the final diagnosis highly difficult.

Hypertensive disorders, occurring in approximately 7% of all late pregnancies account for approximately 20% of all maternal fatalities, and have been estimated to result in 30,000 neonatal deaths and stillbirths per year in the U.S. alone (7). It is under such difficult moments and duress of circumstances that obstetricians resolve to terminate the pregnancy to ensure maternal and fetal well-being. However, termination of pregnancy in such cases, with all the inevitable and potential risks, makes the task doubly difficult and challenging for both the obstetrician and anesthesiologist, if a CS is anticipated. According to some, maternal mortality had been less among eclampsics delivered by CS (8).

Since the etiology of preeclampsia-eclampsia is unknown, management is symptomatic. The goals are to prevent and/or control convulsions, improve organ perfusion, normalize blood pressure, and correct clotting abnormalities. Delivery is indicated in refractory cases or if the pregnancy is close to term (9). Maternal diseases such as the hypertensive diseases of pregnancy, coagulopathies and hemorrhage still present the obstetric anesthesiologist with periodic major challenges (7).

Powerful accounts of the subject have been given (1,10,11,12) but it would be a wishful speculation that all would go well unless constant and permanent vigilance is exercised. Once ominous signs start appearing, even in the best of hands catastrophic outcomes can be seen. Massive proteinuria should suggest that the patient has far advanced disease (13). Proteinuria therefore is a symptom of far wider importance and must be given serious consideration. Proteinuric hypertension or preeclampsia remains the most important form of hypertension and carries the greatest risk for mother and the fetus (2).

We have found that the relationship between an obstetrician and an anesthesiologist is a see-saw of cooperation and conflict. Both need more candid and mature relationship. In case of mishap, the blame should

not be laid squarely at the door of the neighbour.

For all their subtlety, epidural and general anesthesia leave many issues unsettled. Epidural is the anesthetic of choice in women with preeclampsia providing there is no clotting abnormality, plasma volume deficit or acute fetal distress (1,9). Placental perfusion shows a significant reduction in severe preeclamptic toxemia which of course is returned to normal by an epidural block T10-S5 and causes a reduction in maternal catecholamine (4,5,6,11). These virtues are cited as a stepping stone to the pinnacle of current achievements with epidural anesthesia. General anesthesia, on the other hand, is suggested in acute emergencies such as abruptio placenta and in patients who do not meet the criteria for epidural anesthesia (9) but induction and intubation are likely to precipitate large rises in blood pressure initiating pulmonary edema and cerebrovascular accident (9,11). These risks can be minimized with appropriate antihypertensive therapy such as nitroprusside infusion or administration of opioids (fentanyl, alfentanil) shortly before induction (9).

The incidence in our series was 8.71% which was slightly higher than that reported by Finster (9), but fell within the range reported by Sibai (1). In another study, the incidence of eclampsia alone was 2.2% of all hospital deliveries (14) and the relatively high incidence of eclampsia was considered perhaps due to lack of antenatal care facilities and late referral to hospital. However, despite improvement in antenatal facilities, eclampsia remains a continuing problem in developing countries (15).

Our protocol was to detect the high risk cases and admit them in the hospital, believing in the dictum that a watched pot never boils and that these patients need preferential treatment. Early recognition of elevated blood pressure in pregnancy is still considered the most critical step in preventing the maternal and prenatal morbidity and mortality associated with preeclampsia-eclampsia (16). We abided by this golden rule in admitting our cases and recording their blood pressures. We employed liberal use of diazepam and magnesium sulphate (8) in those prone to develop convulsions, and hydralazine in 5 mg boluses to reduce the elevated blood pressure. However, hydralazine causes serious fetal bradycardia secondary to reduced uteroplacental perfusion, therefore the fetal heart rate variability was closely monitored (17). Deliveries were allowed to proceed normally except when the maternal or fetal well-being was in jeopardy in which case frequent use of CS was resorted to with exceedingly good results.

Epidural anesthesia was the first option in CS except in cases of dire emergencies or cases when the patients did not qualify for an epidural block.

In view of their highly contracted volume coupled

with hemoconcentration, volume expansion and verapamil therapy have been advocated (18). Recently, interest has been shown in nimodipine as an antihypertensive agent in patients with preeclampsia (19).

An even more baleful aspect of this disease is that women do not report to antenatal clinics for check up. This can be attributed to public unawareness and the inadequate news media and hospital bulletin instructions for pregnant women. Low dose aspirin should preferably be given to all women at high risk for developing preeclampsia (2,16). Similarly, the coagulation profile and the laboratory investigations should be repeated in all susceptible cases (3,16). In conclusion, we quote a saying, "Get the sleigh ready in summer and the cart ready in winter." Thus a good antenatal care is all that is needed to accomplish uncomplicated deliveries. Furthermore, a provision should be made for neonatal and maternal ICU facilities and a trained team should be available round the clock in those hospitals catering for obstetric emergencies.

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