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PREGNANCY INDUCED HYPERTENSION;
ANTI-HYPERTENSIVE THERAPY IN A STUDY USING SINGLE DRUG VERSUS MULTIPLE DRUGS

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ABSTRACT... dradeelaslam@hotmail.com Objective: To assess the stress response in severe pregnancy induced hypertensive patients on different drug regimen during preoperative and postoperative period. Sample size: 40 patients. Study Design: Comparative study. Place: CMH Kharian and WT Obgyne (Pvt) Ltd. Multan. Duration: June 2004 to January 2005. Patients and Methods: 40 patients of severe pregnancy induced hypertensives were induced in this study. 20 patients were placed on a single standard anti-hypertensive i.e. alpha methyldopa and 20 were put on a combination of alpha methyldopa with long acting nifedipine or amlodipine. Both these groups underwent caesarean section. The stress response in both these groups was carefully analyzed and compared with a special note on any untoward effect on the mother or fetus. Results: The results from this trial clearly demonstrated that patients on combined drug therapy showed better stress response during perioperative and postoperative period. Conclusion: In severe PIH patients undergoing caesarean section good feto-maternal outcome was obtained on combination antihypertensive drug therapy as compared to patients receiving single anti-hypertensive drug.

Keywords: Preoperative, Postoperative period, Feto-maternal.

INTRODUCTION

About 1/5lh of all pregnancies are complicated by some form of hypertension. In the mildest form there is rarely any increase in risk to the mother and fetus during anaesthesia and surgery, but in severe pregnancy induced hypertension major risk factors are cardiovascular and cerebrovascular complications1. Therefore it is mandatory to stabilize patient and achieve an adequate blood pressure control before subjecting to patient to any form of anaesthesia. There is a wide range of antihypertensive drugs available shown in Figure-l.

During pregnancy our aim is to choose a drug

which should have a good vasodilator effect and lowers systolic and diastolic blood pressure adequately without compromising or uterine and placental blood flow, it should not cause fetal bradycardia or teratogenicity2. Therefore ACE inhibitors, thiazides diuretics and beta blockers are avoided.

The exact hemodynamic changes that may occur in the presence of severe pre-eclampsia remains unknown. Haemodynamic values ranging from normal to increased cardiac output, cardiac after load or systemic vascular resistance and decreased ventricular preload have been reported to occur. However, if pre-eclampsia is untreated then there is low wedge pressure, low cardiac output and high systemic resistance, therefore adequate antihypertensive treatment should be carried out early and effectively3'4. Thereby reducing the risk to the mother and at the same time not compromising on the placental intervillous perfusion. The main aim of our study was whether during perioperative and postoperative period antihypertensive effect of a long acting formulation (nifedipine, quinilodipine) in combination with alpha methyldopa on myocardium and the peripheral vessels as compared to alpha methyldopa alone or whether patients on combination drug therapy showed lesser stress response during laryngoscopy and intubation.

PURPOSE OF STUDY

To assess the stress response in severe pregnancy induced hypertensive patients on different drug regimen during perioperative and postoperative period.

PATIENTS AND METHODS

This study is based on analysis of data collected at the department of anaesthesia CMH Kharian and WT Obgyne (Pvt) Ltd. Multan. Data was prospectively collected on a pre-structured form and included indepth information about the patients age, socio-economic status, parity, obstetrical history, medical history and history of any previous drug intake. Baseline blood pressure and weight record was taken, laboratory investigations like Rh grouping, blood complete picture, urine routine examination, blood sugar, renal function tests, liver function tests, uric acid, serum CA~ level, coagulopathy profile, HbAgs, HCV and serum electrolyte were performed.

Forty patients included in this study were between 20-40 years of age with variable parity. All these patients were normotensive in non-pregnant state. 36 patients developed PIH after 2nd trimester whereas only 4 developed PIH before 24 weeks of pregnancy. The inclusion criteria were a systolic BP consistently higher than 140 mmHg and/or diastolic BP consistently above 90mmHg.

On detection of hypertension alone with general measures all the patients were initially put on alpha methyldopa (250-500 mg tables or QID) with the aim to keep the diastolic blood 90-95 mmHg. Patients who did not respond within four days were placed on an additional antihypertensive i.e. nifedipine or amilodipine.

Forty patients were choosen for the study, 20 in Group-l on monotherapy and 20 in group-ll on combination therapy. Previously known hypertensive or patients with some other complications i.e. renal damage, unstable BP regulation, poor drug compliance were excluded from the study. Consent was obtained. All these patients underwent caesarean section for various reasons as planned or in emergency.

In planned operations on the day of surgery at 6 am they were given their usual dose of antihypertensives with one or two sips of water. Injectable I/V antibiotic was given as per routine. Intraoperative and postoperative intensive BP monitoring was done using electronic non-invasive

NIBP. Induction of anaesthesia was done by giving I/V Inj. Propofol 175-200 mg combined with short acting muscle relaxants for intubation, xylocaine 2% 1-1.5 mg/kg I/V stat was given to prevent stress response with laryngoscopy and intubation. After delivery of the fetus strong opioids were given to prevent pain. For maintenance Isoflucane (inhalational anaesthetic) agent were used. A record was kept of patients BP. Heart rate, renal output during operation and postoperatively with a special note on any untoward effect and requirement of isosorbide dinitrate infusion.

RESULTS

Valuation of the result was based on the objectives of the study i.e. comparing efficacy of alpha methyldopa alone and combination of nifedipine or quinlodipine with alpha methyldopa on the stress response mediated via sympathetic system during surgery and postoperative period. It was observed thatgroup-ll patients had stable diastolic systolic BP and heart rate and except for 2 patients (5%) did not require additional I/V anti-hypertensive (Isokit) in operation theatre whereas 8 patients in group-l (40%) required additional antihypertensives infusion during the surgical procedure. Postoperatively 40% of group-l patients required Isokit infusion for 6-8 hours whereas in group-ll only 5% patients required Isokit infusion for 2-4 hours only.

Table-1

Groups	Induction	Intra operative	Postoperative
Group 1	160/95	180/110	160/100
Group II	150/90	140/85	130/80

DISCUSSION

This is a multi-centre study that highlights the role of good blood pressure control in preoperative period and its effect in intra and postoperative period. There is consensus that PIH should be treated and stabilized without delay to reduce the risk of CVA and cardiac complications2 during anaesthetic and surgical procedure. This trial was designed and conducted as a clinically controlled study comprising of two groups (group-l patients placed on single drug therapy i.e. alpha methyldopa and group-ll patients placed on multidrug therapy i.e. alpha methyldopa, nifedipine or amlodipine). Evaluation of the results was based on three objectives:-

* Prevention of stress response during induction of anaesthesia.
* Smooth intra-operative and postoperative period.
* Prevention of complications like CVA, heart failure, pulmonary edema, renal failure.

It was observed that fall in systolic and diastolic BP was significant in those patients where the disease was detected early5 and after case to case evaluation of patients were placed either on mono or combination therapy. There was a statistical delayed recovery in those patients where blood pressure remained unstable during intraoperative period (mostly patients on mono therapy). 8% of the above mentioned patients also showed sign of cerebral edema and pulmonary edema6 which had to be aggressively managed, by using frusemide, Inj. Mannitol 0.5-1.5 mg/kg and good analgesia and sedation.

CONCLUSION

It is concluded from the study that combination of antihypertensive drug therapy in severe pregnancy induced hypertensive patients had a markedly beneficial stabilizing effect on the systolic and diastolic blood pressure and heart rate during intra and postoperative period, thereby reducing the complication rate in these patients.

REFERENCE

1. Harmon G. Manual high of risk pregnancy and delivery 2nd ed. 1998.

2. Cockburn J. Final report of study of hypertension during pregnancy. The effects of specific treatment of the growth and development of the children. Lancet 1982; 1:647.

3. Danforth DN. Obstetrics and Gynaecology 5th ed. 1986.

4. Arias F, Zamora J. Antihypertensive treatment and pregnancy outome in patients with mild chronic hypertension,. Obstet Gynaecol 1979; 53:489.

5. Cotton DB. Hemodynamic profile of severe pregnancy induced hypertension. Am J Obstet Gynaecol 1988; 158: 523.

6. Chesley LC. Hypertensive disorders in pregnancy. Appleton Century Crofts 1978.