ROLE OF NEFEDIPINE AND BETA BLOCKER IN THE CONTROL OF SEVERE HYPERTENSION IN PREECLAMPSIA AND ECLAMPSIA.

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SUMMARY

Mortality and morbidity in preeclampsia and eclampsia are directly related to the level of hypertension. Hydrallazine by parenteral route is reported to be effective in such cases. But such preparation is not available in our country. Nefedipine, a drug used in hyperternsive crisis in medicine, has been tried to control severe hypertension of preeclampsia and eclampsia. Use of tranquiliser like diazepam could not effectively control the blood pressure. On the other hand, in majority cases studied here, the blood pressure could be lowered by the use of nefedipine received either subllingually or intranasally. A dose variation of nefedipine did not improve the result much. But combination of sublingual nefedipipe and oral labetalol helped to control the blood pressure more effectively.

INTRODUCTION :

Major therapeutic problem in preeclamstic toxaemia and eclampsia is control of hypertension, because this is the main causative factor for eclamptic convulsion, cerebrovascular haemorrhage and pulmonary oedema in eclampsia. Hence the role of an effective antihypertensive drug in such diseases will be mostly appreciated.

Until recently,drugs like serpasil, hydrallazine, methyl dose have been used singularly, or in combination. But their ability to control blood pressure is poor. Intravenous hydrallizine is reported to be a good drug. This has been successfully used in by Cunningham & Pritchard (1984) Parkland Memorial Hospital, U.S.A. Unfortunately parenteral preparation of hydrallazine is not available in our country. Nefedipipe is used in general medicine to control hypertensive crisis. This drug is calcium channel blocking agent. It decreases cardiac contractility and dilates peripheral blood vessels and coronary artery. The cardiovascular effect of beta blocker is caused by diminution of sympathetic drive. This reduces heart rate, myocardial contractility and cardiac output. Labetalol, a newer beta

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blocker, has the added effect of combination of alpha and beta adrenoreceptor blocker (Laurence and Bennett 1987). The present study has been undertaken with these background knowledges to assess the efficacy of newer artihypertensive drugs.

RESULTS AND ANALYSIS :

A total of one hundred fifty patients hospitalised for severe preeclampsia and eclampsia during the period from 1988 to early 1990 have been studied here. Initial blood pressure of these patients was at or above 160/110 mm Hg (critical level).

Nefedipine was used either sublingually or intranasally. Labetalol was given orally. Out of 150 patients studies, 60 received Nefedipine 10 mgm 8 hourly. 50 received Nefedipine 20 mgm 8 hourly and 40 received Nefedipine 10 mgm 8 hourly and Labetalol 100 mgm twice daily. 50 patients were studied separately as control. These patients received only diazepam intravenously. For first 24 hours,60 mg of diazepam was given by continuous drip in 5 per cent dextrose solution. During the next 24 hours, the dose of diazepam was reduced to 30 mg. Blood pressure was recorded on 8 hourly for first 48 hours and 12 hourly thereafter.

It was observed that with diazepam alone, blood pressure could be brought down below critical level after 48 hours in only 9 patients out of 50 in this group.

Patients receiving artihypertensive drugs also received diazepam in addition as per dosage schedule under control study. Sixty patients received Nefedipine 10mg 8 hourly. Sustained fall of blood pressure after 24 hours of administration of the drug was noted in 32 out of 60 patients in this group. This figure rose to 43 after 48 hours of drug administration.

Fifty patients received Nefedipine 20 mg 8 hourly. Diazepam was also given as per dosage schedule under control study. Sustained fall of blood pressure below critical level was recorded in 28 and 35 patients 24 and 48 hours respectively after administration of the drug.

Another 40 patients received Nefedipine 10mg 8 hourly and Labetalol 100 mg twice daily. Diazepam was also given as per dosage schedule under control study. Here 22 patients showed sustained fall of blood pressure below critical level within 24 hours of administration of the drug. Thirtythree patients recorded sustained fall of blood pressure below critical level within 48 hours of administration of drugs.

DISCUSSION :

This study has been conducted in one of the rural medical colleges in West Bengal between 1988 to early 1990. Total antenatal and labour patients screened during the period of study was 2721. The incidence of severe preeclampsia and eclampsia has been found to be 5.2 per cent.

A total number of 150 patients have been studied regarding the effect of nefedipine alone and in combination with labetalol. The results have been compared against 50 patients taken as control.

Diazepam was given as continuous drip with 5 per cent dextrose solution intravenously for 48 hours. Total dose of diazepam was 60 mg for first 24 hours and 30 mg for next 24 hours. The major therapeutic effects of diaperam are hypnotic, sedative, anticonvulsive and muscle relaxant effect. Through its sedative effect, diazepam is thought to control pregnancy hypertension. The other important effect of diazepam is its anticonvulsive property. Certainly, this drug is of much benefit to prevent sudden onset of eclamptic fit in such cases. Diazepam was used in all the different groups studied here due to reasons stated above.

Critical level of blood pressure in severe preeclampsia is considered to be 160/110 mm or above. Here major complications like eclampsia, accidental haemorrhage and intrauterine foetal

death mostly occur. Hence control of blood pressure below this level will help to minimise such grave complications.

Majority of the mothers were primignavidae with an average age group between 20 to 25 years.

Using intraverous diazepam alone, in the control group, blood pressure could be brought down below critical level in only 9 out of 50 patients after 48 hours of continuous intravenous drip. This figure is not encouraging.

After puncturing the capsule, nefedipine was given subbingually to mothers who were conscious (intranasally to all eclamptic mothers) in addition to diazepam. In the first group, 10 mg of the drug was given 8 hourly. A sustained fall in blood pressure below critical level was seen in 53 per cent patients after 24 hours. This figure rose to 71 per cent after 48 hours. This figure is encouraging.

The result with increasing dose of nefedipine from 10 mg to 20 mg 8 hourly was not found to give better result.

Different varieties of adrenoreceptor blockers have been used to control hypertension is preeclampsia with varying success (Ferris, 1984). Mention has been made about adverse effect on fetus, especially fetal bradycardia and reduction of placental blood flow due to use of antihypertensive drugs in general. Both the drugs have been used here for short period. Whereas the idea of reduction of placental flow is yet to be established, no fetal bradycardia was observed during our study with labetalol.

The combined effect of nefedipine 10 mg 8 hourly (sublingual or intranasal) plus labetalol 100 mg twice daily (oral) has been found to be very encouraging. Here sustained fall of blood pressure below critical level could be achieved after 24 hours use of the drug in majority patients (55 per cent) whereas in most patients blood pressure came down below critical level within 48 hours of use (82%).

Majority of patients under this study were delivered within 48 to 72 hours from the beginning of the treatment. In others, where high rise of blood pressure above critical level persisted or pregnancy had to be continued, nefedipine 10mg to 8 hourly with or without labetalol 50 mg to 100mg twice daily were continued.

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