

ROLE OF DIURETICS IN PRE ECLAMPSIA

by

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Introduction

Pre-eclampsia is by far the most common manifestation of pregnancy toxæmia. It presents a wide variation in clinical course and severity. Its first appearance is always in the second half of pregnancy except when hydatidiform mole is present and then it may appear much earlier. The relatively late onset of pre-eclampsia constitutes an important distinguishing feature between it and essential hypertension and nephritis for in the latter conditions, the symptoms and signs are present in the first half of the pregnancy and nearly always before pregnancy begins, though they may not be recognized until the first antenatal examination is made. Its outstanding features are generalised vasospasm, an extensive retention of sodium and water and an unusual renal lesion. These changes manifested by excessive gain of weight, oedema, hypertension and albuminuria. These manifestations are usually treated with bed rest, multivitamins, sedatives, anti-hypertensives and diuretics. The aim of this study is to know the role of diuretics in pregnancy induced hypertension.

Material and Methods

The medical records of 100 patients with pre-eclampsia admitted in Government Kilpauk Medical College Hospital, Madras during the year 1981 were reviewed. Pregnancy induced hypertension are subdivided into mild and severe forms as follows:

(a) Mild: Sustained blood pressure between 140/90 and 160/100 with the woman resting in bed.

(b) Severe: Sustained blood pressure of 160/100 or more with the woman resting in bed. According to this classification, in our study of 100 cases, 67 cases belonged to mild type (67%), 33 cases belonged to severe type (33%). These cases are studied for the prognosis according to whether they had diuretics or not.

Twenty-eight cases (28%) belonged to age group 15-19 years, 63 (63%) to age group 20-29 years, 9 (9%) to age group 30-39 years;

In our study, in the age group 15 to 19 years 4 cases, in the age group of 20-29 years 7 cases and in the age group of 30-39 years 2 cases had treatment with diuretics.

Parity Incidence

Many obstetricians consider that pre-eclampsia is a disease of the primigravida. There is no doubt this condition arises

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much more frequently in first than in subsequent pregnancies, but multiparous women are also seen with high blood pressure which has developed after 24th week of gestation and which returns to normal levels after the post partum period i.e. they fulfil the criteria for the definition of pre-eclampsia.

In our study, 51 cases (51%) were primi-gravidas, 17 cases (17%) 2nd gravidas, 15 cases (15%) 3rd gravidas, 8 cases (8%) 4th gravidas, 4 cases (4%) 5th gravidas, 4 cases (4%) 6th gravidas and 1 cases (1%) belonged to 7th gravida.

In primi-gravidas, out of 14 severe cases only 6 had treatment with diuretics. In multiparous women, out of 19 severe cases, only 7 had treatment with diuretics.

Signs and Symptoms

The cardinal signs and symptoms are high blood pressure, oedma and albuminuria. Either all of them or any combinations of them may be present in a case. In some, the only evidence of it is a slight rise in the systolic pressure. In addition, there may be some evidence of excessive fluid retention as shown by excessive weight gain, a general puffy appearance, swelling of the fingers, and pitting oedma especially over the internal malleoli. A haze of albumin may be demonstrable in a clean mid stream specimen of urine. In others, the course of the disease is much more unfavourable. The signs may progressively become more serious or may be severe from the very first. Every case, however mild, requires careful management.

In our study, 82 cases (82%) had elevation of B.P. and oedma without albuminuria. Fifty-three cases (53%) cases had elevation of B.P. and albuminuria without oedma. Forty-three cases (43%) had elevation of B.P., oedma and albuminuria.

Treatment

All patients including mild cases need rest in bed from the beginning, and this alone often results in increased renal and placental blood flow, increased diuresis, lowering of blood pressure and diminution of oedma. In severe cases, the diet should be light with adequate proteins and carbohydrates. Sedation too plays an important role in the treatment of pre-eclampsia. For hypertension, the drug which is commonly used in our hospital is methyl dopa.

Diuretics

In some obstetric practices, every patient is given a diuretic at some time during pregnancy. Routine administration of diuretics to normal pregnant women as a means of controlling weight gain or sodium balance should be avoided. Diuretics do not prevent pre-eclampsia or eclampsia.

Natriuretic drugs, such as chlorothiazide and its congeners have been severally over used. Although diuretics have been alleged to prevent the development of pre-eclampsia the results of the studies of Kraus *et al* (1966) and others cast doubt on their real value. The women studied by Kraus *et al* (1966) and associates took either a placebo or 50 mg of hydrochlorothiazide daily during the last 16 weeks or more of gestation. The incidences of pre-eclampsia were identical (6.67 per cent) in 195 primigravidas who took the placebo. Similarly, the development of hypertension was unaffected in 565 multiparas. The failure of natriuretic drugs in the prevention of pre-eclampsia raises serious doubts about the efficiency of dietary restriction of sodium. While there is no clear evidence that they are of any value, there is evidence that these agents can reduce renal perfusion as measured by

creatinine clearance and more important probably, reduce uteroplacental perfusion (Grant *et al* 1975). The thiazide diuretics can induce serious depletion of both sodium and potassium. Minkowitz *et al* (1964) and Menzher and Prystowsky (1967) reported the findings of depletion of electrolytes and haemorrhagic pancreatitis in women who died following treatment of pre-eclampsia with chlorothiazide. Rodriguez and associates (1964) moreover, found severe thrombocytopenia in some newborns whose mothers had received thiazide diuretics.

If the drugs are to be used, they should be given for not more than 5 days. When drug is discontinued, sodium retention usually occurs and another short course of treatment may be started, after several days. In general, the more severe the pre-eclampsia, the more resistant the oedema is to diuretic agents. Unfortunately, none of the diuretic agents yet available are consistently effective in removing excess of extracellular fluid without disturbing electrolyte balance. Ethacrynic acid may be preferred to the thiazides for therapy of severe pre-eclampsia and eclampsia, particularly when acute pulmonary oedema is present or imminent. But Furosemide is more potent than ethacrynic acid.

In our hospital, frusemide is used only for restricted number of cases which belong to severe form of pre-eclampsia. In our study, 82 cases (82%) had treatment with bed rest, multivitamins, and sedation

alone. Eighteen casts (18%) had treatment with hypotensive drugs in addition to bed rest, multivitamins and sedation. Only 13 severe cases (13%) had treatment with diuretics in addition to bed rest, multivitamins, sedation and hypotensive drugs. So out of 33 severe cases, only 13 cases had treatment with diuretics giving the percentage 39.39%. The remaining 20 cases were treated without diuretics giving the percentage of 60.61%.

Table I shows the maternal outcome i.e. the number of cases and percentage which developed eclampsia in two different groups—in the group which had treatment with diuretics and in the group which were treated without diuretics.

Table II shows the complications in the group of cases which had treatment with diuretics and in the group of cases which were treated without diuretics.

Mode of Delivery

In our study, the mode of delivery of patients with pre-eclampsia was as follows: 77 cases (77%) had normal vaginal delivery. Twenty cases (20%) delivered by forceps. Three cases (3%) had lower segment caesarean section.

Maternal Morbidity and Mortality

With the realisation and better understanding of the importance of antenatal and postnatal care and ensuring adequate

TABLE I

S. No.	Type of Cases	No. of cases of severe form of cases	No. of cases which developed eclampsia	% of cases which developed eclampsia
1.	Cases for which diuretics were used	13	1	7.69%
2.	Cases for which diuretics were not used	20	0	0%

TABLE II

S. No.	Complications	No. of cases which had treatment with diuretics		No. of cases which had treatment without diuretics	
		No. of cases	% of cases	No. of cases	% of cases
1.	Maternal:				
	a. Eclampsia	1	7.69	0	0%
	b. Accidental haemorrhage				
	Gr. I	2	15.38	0	0%
2.	Foetal:				
	a. Deadborn	1	7.69	0	0%
	b. Premature	2	15.38	1	5%
	c. Intra Uterine Death	1	7.69	2	10%
	d. Intra uterine Growth Retardation	0	0%	1	5%

bed rest for these cases the morbidity has come down considerably. In our study, percentage of incidence of maternal mortality rate was nil.

Perinatal Mortality

If the course of the disease cannot be controlled by usual measures, the prognosis is grave. The foetus may die in utero or premature labour may set in or child may be too immature to survive. In our study, the foetal outcome was as follows: 73 cases (73%) had normal healthy babies. 16 (16%) premature babies and 8 (8%) had intrauterine death. The remaining 3 cases (3%)—were perinatal deaths.

Summary

100 patients with pre-eclampsia were analysed. Out of 33 severe cases, only 13 cases had treatment with diuretics. The

remaining 20 cases were treated without diuretics. Complications occurred in the both groups i.e. in the group of cases which had treatment with diuretics and also in the group which had treatment without diuretics. But, in our study, the complications, are more in diuretic used cases. Diuretics have only restricted or no role in the treatment of pregnancy induced hypertension.

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