LOW DOSE ASPIRIN IN THE PREVENTION OF PIH

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SUMMARY

A prospective study was carried out at L.T.M.G. Hospital, Sion, Mumbai 400 022, to assess the role of low dose aspirin therapy in the prevention of pregnancy induced hypertension. The results showed that there was a significant decrease in the incidence of severe PIH in the aspirin treated group as compared to the control group. Careful examination of the neonates revealed no bleeding tendencies or any congenital anomaly.

INTRODUCTION

Pregnancy induced hypertension occurs in upto 10% of pregnancies and may cause substantial maternal and fetal morbidity and mortality. The underlying cause remains unknown but most investigators agree that utero-placental ischaemia plays an important role. Current knowledge implicates an imbalance between thromboxane and prostacyclin in the causation of utero-placental ischaemia and thus PIH.

Both thromboxane A_2 and prostacyclin (PGI_2) are derived from arachidonic acid through the action of the enzyme cyclo-oxygenase. Aspirin, by acetylating this enzyme may reduce the formation of both thromboxane A_2 and PGI_2, but if given in low doses it can selectively suppress the synthesis of thromboxane A_2 without inhibiting the production of PGI_2. (Roth et al, 1975; Patrignani et al, 1982).

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The present study has been undertaken to evaluate this peculiar property of low dose aspirin in PIH.

MATERIAL AND METHODS

Total of 100 patients with risk of developing PIH were studied over a period of 3 years at L.T.M.G. Hospital, Sion, Mumbai- 400 022.

After ruling out diabetes mellitus, pre-existing hypertension and pre-existing renal disease, 100 patients at high risk for PIH (viz. primigravidas, patients with twin pregnancy and patients having previous history of PIH) and with positive roll over test were randomly divided into two groups of 50 each. In group A 50 cases were given 75 mg. Aspirin daily dispersed in a capsule starting from 28-30 weeks of gestation till 7 days before expected date of delivery. The other group (B) serving as control were given capsule containing dextrose or other inert material.

Following criterias of PIH were used in these patients. Pregnancy induced hypertension was defined as systolic blood pressure in excess of 140 mmHg or diastolic blood pressure in excess of 90 mmHg or both, when measured on at least two occasions, at least 24 hours apart, in women whose blood pressure has been previously normal. Severe pregnancy induced hypertension was defined as the development of -

(a) Diastolic blood pressure in excess of 110 mmHg or
(b) Presistent proteinuria of 2+ or more or 24 hours urinary protein excretion of 4 gm. or
(c) Oliguria (Urinary excretion less than 400 cc/24 hours) or
(d) Convulsions.

Each patient was examined at fortnightly intervals. Fundal height, blood pressure and urinary protein levels were recorded at each time. Patients who developed PIH were admitted. Their serum uric acid levels, blood urea, serum creatinine, fundus examination and ECG findings were recorded and they were managed in accordance with severity of the disease. The efficacy of low dose aspirin as a preventive measure against PIH was assessed by analysing the results statistically.

OBSERVATIONS AND RESULTS

The study group (A) and control group (B) were well matched with respect to age, parity, rate of twin pregnancy and past obstetric history.

With regard to the development of PIH the two groups were homogenous and did not differ significantly as shown in Table I. But most of the cases in the study group (A) developed mild PIH while those in the control group (B) developed severe PIH.

As depicted in Table II, in the control group, out of 10 cases in which forceps were applied, in 8 the indication was intrapartum fetal distress during 2nd stage of labour. Also 3 patients underwent LSCS in the control group because of fetal distress. In the study group, intrapartum fetal distress occured in only one patient and low forceps was applied.

Table III shows the birth weight of infants in the study and the control

Table I
DEVELOPMENT OF PIH AND SEVERE PIH

Characteristic	Study group (n = 50)	Control group (n = 50)	Statistical significance
PIH	20 (40%)	24 (48%)	Not significant
Severe PIH	2(10%)	12 (50%)	Significant

Table II
DEVELOPMENT OF INTRAPARTUM FETAL DISTRESS AND MODE OF DELIVERY

Characteristic	Study group (n = 50)	Control group (n = 50)
Intrapartum fetal distress	1	11
Normal vaginal delivery	46	35
Forceps application for fetal distress	1	8
Forceps application for prolonged second stage	2	2
Caesarean section for fetal distress	-	3
Caesarean section for other indications	1	2

groups. With regard to birth weight, the two groups were comparable and did not differ significantly at the 0.05 level of significance.

Table III
BIRTH WEIGHT

Birth weight in kg.	Study group (n = 50)	Control group (n = 50)
Less than 2.5	4	8
More than 2.5	46	42

Careful examination of the neonates in the study and control groups revealed no bleeding tendencies or circulatory disorders or any other congenital malformation.

DISCUSSION

Roll over test proved to be an adequate and harmless screening test for the detection of those patients at a relatively high risk for development of PIH. 48% of the patients in the control group developed PIH. These results are comparable to those of Gudson and Stephen (1977) who stated that in primigravidas positive roll over test predicted development of PIH in 50% of cases.

In this study, the incidence of PIH did not differ significantly in the study and control groups. These results were similar to those of McParland et al (1990). In contrast to the above studies, Wallenburg et al (1986) and Schiff et al (1989) demonstrated a significant decrease in the incidence of PIH in the Aspirin treated group.

There is a significant decrease in the incidence of severe PIH in the Aspirin treated group. These results were similar to those of Wallenburg et al (1986), Schiff et al (1989) and McParland et al (1990).

Intrapartum fetal distress for which low forceps application or LSCS had to be done, occurred in a significantly higher number of patients in the control group as compared to the study group. Schiff et al (1989) made a similar observations. Thus it can be postulated that low dose Aspirin therapy improves utero-placental circulation.

Careful examination of the neonates at birth revealed no abnormal bleeding tendencies. These observations are consistent with those of other prospective studies using aspirin less than 150 mg/ day i.e. those conduced by Schiff et al (1989), Wallenburg et al (1986) and McParland et al (1990).

CONCLUSION

To conclude, low dose aspirin therapy is safe and justified for the prevention of severe pregnancy induced hypertension in high risk patients. However, large studies are required to establish the optimum

dosage schedule and the period of gestation at which it should be administered.

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