

FOETAL SEX IN PREGNANCY INDUCED HYPERTENSION

By

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SUMMARY

The male to female ratio was determined in 2401 cases who were delivered between January 1984 and June, 1986. The overall male to female ratio was 0.60 in 1860 normotensive mothers and 2.38 in 541 mothers with PIH. Both values were significantly different. The ratio increased in all forms of PIH as compared with control. The ratio did not increase with increase in severity of PIH. This data support the hypothesis that histoincompatibility of foetus and mother including incompatibility due to an antigen dependent on the 'y' chromosome may be contributing in the pathogenesis of pregnancy induced hypertension.

Introduction

Hypertensive disorders of pregnancy are the leading cause of maternal and perinatal morbidity and mortality. The combined incidence and prevalence of the various hypertensive disorders in pregnancy is commonly said to be about 6-8% (Chesley, 1984).

Several complications of pregnancy including pre-eclampsia, premature labour and placenta praevia are associated with an increase in sex ratio of male to female at birth. The present study was carried out to see the relationship of foetal sex with pregnancy induced hypertension (PIH).

Material and Methods

Data were collected from records from the year 1984 to June, 1986. All babies

both premature and full term were considered. The controls were healthy babies born to healthy mothers during the same period as babies of mothers with PIH. Ratio of male to female was determined in newborn babies. The classification suggested by Baird (1977) was used to define PIH and to grade its severity.

Observation

From January 1984 to June 1986, the total number of deliveries considered were 2401.

The overall ratio in 2401 babies was found to be 0.91. The ratio of male to female in 541 babies born to mothers with pregnancy induced hypertension was 2.38, whereas in the control cases, the ratio was 0.60. The difference being highly significant.

Table II reveals that there is an increase in male to female ratio in all forms of PIH when compared with control cases. It has been observed that in cases of mild

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TABLE I
Ratio of Male to Female in 2401 New Born Babies

| Group | No. of cases | New born (number) | | Ratio of male to female |
|---------|--------------|-------------------|--------|-------------------------|
| | | Male | Female | |
| P.I.H. | 541 | 381 | 160 | 2.38 |
| Control | 1860 | 765 | 1095 | 0.60 |
| Total | 2401 | 1146 | 1255 | 0.91 |

$\chi^2 = 144.18$, $p < .001$ Highly significant

pre-eclampsia male to female ratio was 1.96, whereas in severe pre-eclampsia, the ratio was 2.88. The sex ratio did not increase in severity of PIH, the difference being insignificant ($\chi^2 = 3.34$, $p < .10$ and $\chi^2 = .377$ $p < .07$ respectively).

histoincompatibility in the pathogenesis of toxæmia of pregnancy.

In our study, it has been observed that mothers with PIH have boys significantly more (ratio 2.38) than the control mothers (ratio 0.60). The ratio of male to female

TABLE II
Ratio of Male to Female in Relation to Severity of P I H

| | New born (number) | | Ratio of male female | χ^2 | p |
|----------------------|-------------------|--------|----------------------|----------|-----------------------------|
| | Male | Female | | | |
| Control cases | 765 | 1095 | 0.66 | | |
| Mild pre-eclampsia | 244 | 124 | 1.96 | 78.57 | <.001 Highly significant |
| Severe pre-eclampsia | 124 | 43 | 2.88 | 68.27 | <.001 Highly significant |
| Eclampsia | 13 | 3 | 4.33 | 10.52 | <.01 significant |

Discussion

Exact pathophysiology of PIH is not known. Increased vasoconstrictor tone, abnormal prostaglandin action and immunologic factors are the current aspects about the pathophysiology of PIH (Worley, 1984). Incompatibility of foetus and mother as a cause of toxæmia of pregnancy was suggested by Dienst (1905).

Toivanen and Hirvonen (1970) reported that the ratio of male to female in babies born to toxæmic mothers was significantly increased indicating the importance of

revealed no increase with the severity of PIH.

Tillikainen *et al* (1969) have reported that incidence of PIH was more with male foetuses probably due to HL-A antigen on 'y' chromosome and mothers with toxæmia more often have HL-A antibodies (induced by cells from the conceptus) than healthy patients do (Tillikainen and Kauranen, 1969).

Campbell *et al* (1983) reported that the mild form of pre-eclampsia is associated with the carrying of male foetus and in contrast severe pre-eclampsia is not

associated with any particular type of foetal sex. It has been concluded that the ratio of male to female is significantly increased in mothers with PIH.

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[Faint, mostly illegible text, likely bleed-through from the reverse side of the page. Some words like 'ratio', 'male', 'female', and 'PIH' are faintly visible.]