

**A STUDY OF PLACENTAL
MORPHOLOGY AND HISTOLOGY IN
HYPERTENSIVE PREGNANCIES AND
ITS CORRELATION WITH FOETAL
OUTCOME**

**THESIS
FOR THE DEGREE OF
DOCTOR OF MEDICINE**

ANATOMY

**HIMALAYAN INSTITUTE OF MEDICAL SCIENCES
DEHRADUN
H.N.B. GARHWAL UNIVERSITY
SRINAGAR, GARHWAL**

2004

Dr. NAVBIR PASRICHA

CONTENTS

	<u>Page No.</u>
▪ Introduction	1-4
▪ Review of Literature	5-26
▪ Material and Methods	27-38
▪ Observations and Results	39-63
▪ Discussion	64-81
▪ Summary and Conclusion	82-84
▪ Bibliography	85-97
▪ Annexures	
1. <i>Master Charts for Study and Control Groups</i>	
2. <i>Proforma</i>	

SUMMARY AND CONCLUSIONS

The study of the placenta is, by necessity retrogressive in nature. Yet it provides a reflection of the hazards, the foetus has undergone, during its growth and development.

A comparative study between 30 placentae from women with various grades of hypertension during pregnancy and 30 from disease free gestation was conducted. The findings of macroscopic and histological lesions were critically analyzed. These changes were then correlated with the foetal outcome. The study group comprised of 6 cases of eclampsia, 10 cases of moderate pre-eclampsia and 14 cases of mild pre-eclampsia.

The salient points of the results and the conclusions drawn from them are presented herewith:

- 1) A large number of women (90%) in the study group were below 30 years of age and the incidence of primigravidity was higher (73.34%) in the study group. Shorter duration of gestation was observed more often in the women with higher grades of hypertension. These patients had more complains of excessive weight gain, pedal oedema and headache. Complaints of burning epigastrium were seen more commonly in the eclamptic and moderate pre-eclampsia groups. These findings implied that young primigravidae are more

likely to suffer from pregnancy-induced hypertension and are increasingly associated with the need to terminate the pregnancy at an earlier age.

2) Placental weight and volume were found to be much lower in higher proportion of cases of eclampsia and moderate to mild pre-eclampsia. Lower foeto-placental weight ratio was observed in cases of severe form of the disease than in cases with milder forms of toxæmia.

It was thus concluded that lighter placentae usually accompanied a low birth weight of the foetus.

3) The three main gross lesions which were observed were placental infarcts, retroplacental haematoma and calcification. The incidence of placental infarcts in hypertensive pregnancies was higher as compared to placentae from the control group. Retroplacental haematoma was seen more frequently in the study group, while none of the controls showed this feature. Placental calcification was seen more commonly in the study group, while the control group also showed this feature, but to a lesser degree.

4) The most striking villous lesions in the study group, which correlated well with the severity of the disease, were: cytotrophoblastic cell proliferation, thickening of the basement membrane and deficiency of vasculosyncytial membrane. These microscopic placental lesions were uniformly associated with foetal complications like low birth weight, birth asphyxia and stillbirths.

Other villous lesions like increased syncytial knot formation; stromal fibrosis and fibrinoid necrosis of villi were seen in both control and study groups, although their frequency was much more in the study group. These features according to their frequency correlated with the foetal outcome.

5) From the above, it appears that vascular lesions at uteroplacental levels can explain significant placental lesions, low birth weight and significant hazards incurred by the foetus in the presence of maternal hypertension. Thus, a cause and effect relationship between decreased uteroplacental blood flow leading to compromised foetal growth can be considered.

The findings of the present study have been discussed with the relevant available literature. The study intended at an improved understanding of the genesis of pre-eclampsia, which may permit development of as yet unforeseen treatment directed specifically toward the remedy of pathophysiologic features of placentation, which may underlie all the histologic lesions associated with eclampsia and pre-eclampsia in the current study. Only by recognition of the underlying primary pathology that terminates in maternal hypertension, can meaningful interventions be designed that not only safeguard the mother's well-being, but also provide an optimal intra-uterine environment for the foetus.