

# Placental Weight and Fetal Outcome in Pregnancy Induced Hypertension

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## Research Article

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### ABSTRACT :

Placenta is a vital organ for maintaining normal pregnancy and promote normal foetal development. Being an organ of vital importance for continuation of pregnancy and foetal nutrition, it has evoked great interest among pathologist, anatomist and obstetrists to study this organ in various pregnancy induced abnormalities. Placenta reflects maternal and foetal status. So the complete examination of placenta reflects about causes of change in placenta and causes of maternal and foetal morbidity and mortality. Toxemia of pregnancy / pregnancy induced hypertension (PIH) is one of the leading cause of death among mothers and foetuses. Various studies on placenta have shown that placental weight is directly related to foetal weight. Placenta in PIH mothers is irregular, small in size with marginal attachment of umbilical cord. So the present study shall be done to record data on morphology, morphometry of placenta and its correlation with birth weight in normal and PIH patients in Raichur urban.

**Keywords:** Placental Weight, pregnancy induced hypertension.

## INTRODUCTION:

Placenta is a feto-maternal organ vital for preserving pregnancy and promoting normal development of the foetus. The placenta connects the developing fetus to the uterine wall to allow nutrient uptake, waste elimination and gas exchange via the mother's blood supply [1]. Normal fetal growth and survival depends on the proper growth and function of the placenta. During its development throughout the gestation, placenta undergoes different changes in weight, structure, shape and function continuously [2]. The medical problem like, hypertension, diabetes, etc. complicates the pregrancy. Also this affects maternal health and may affect the functionality of the placenta. The valuable information can be obtained from the examination of the placenta about the perinatal health of the baby and the mother [3].

Toxemia of pregnancy or pregnancy induced hypertension (PIH) is one of the leading cause of death among mothers and foetuses. Various studies on placenta have shown that placental weight is directly related to foetal weight. Placenta in PIH mothers is irregular, small in size

with marginal attachment of umbilical cord.

Hypertension is one of the common complications met with in pregnancy. It is identified if maternal blood pressure is more than 140/90 mm Hg. Hypertension in pregnancy be chronic hypertension (onset before pregnancy) or may be induced due to pregnancy like, gestational hypertension, preeclampsia and eclampsia. These hypertensive disorders causes decreased placental perfusion due to vasospasm of maternal blood vessels. [4]. The present study was undertaken to compare the morphological changes in the placentae of normal and hypertensive mothers. The aim of our study was to assess the adverse effects of maternal hypertension on the morphology of the placentae [5-7].

### Methods:

The mothers were examined clinically (for height, weight, blood pressure, pulse etc.) along with recording of their medical history (history of past illness, history of previous child birth etc). Their investigation reports were noted (haemoglobin, blood sugar, blood group, urea, creatinine, urine for albumin and pus cells). The present study was done on placentae collected from labour room and operat-

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ing theatre of the department of Obstetrics & Gynaecology. The placenta with cord and membranes were collected and observed immediately after the delivery. Any abnormality of the umbilical cord and membrane was noted.

#### Inclusion Criteria:

- **Group I (Control Group)**

The pregnant women's having blood pressure in the range of the 140/90 mm and without any oedema and without any Proteinuria is selected for the study as control group.

- **Group II (Pre-eclampsia)**

In this group the pregnant women's selected had blood pressure more than the normal range 140/90 mm and with and without oedema and Protein-urea.

- **Eclampsia:** Convulsions with Pre-eclampsia

**Exclusion Criteria:** Exclusion criteria is decided that the Gestational age is more than 42 weeks and less than 36 weeks. And the patients with multiple pregnancies. These types of the patients are not included in the study.

## RESULTS & DISCUSSION:

Total 100 placentae were evaluated. From that 50 placentae are pregnancy induced hypertension and 50 are from the normal group patients.

Table 1 : Comparison of Placentae weight:

Weight of Placentae		Less than 200 gm	200-300 gm	300-400 gm	400-500 gm	500-600 gm	More than 600
Control group		0	5	11	18	14	2
Pregnancy induced Hypertension Group	Severe	1	3	8	2	2	1
	Mild	1	3	16	10	2	1

Table 2 : Observation of weight of the placentae in different group

	Mean weight of placenta (gm)	Max. weight of placenta (gm)	Min. weight of placenta (gm)
Control	450	630	260
Severe PIH	350	560	200
Mild PIH	420	610	240

The placenta weight in both the groups were noted and reported. In the normal control group the mean weigh of the placenta was found 450 gm in between the range of min 260 gm to max of 630 gm.

In Severe PIH the weight was observed in the range of 200 – 560 gm and in mild PIH womens is observed in the range of 240 – 610 gm. The mean weight of placenta in study group was low compared to control group.

Hypertensive disorders of pregnancy are one of the leading causes of maternal morbidity or mortality and perinatal morbidity or mortality. The aetiopathogenesis of hypertensive disorders of pregnancy still remains a subject of controversy. The classical view in this regard focuses on the placenta and the utero placental circulation. Although the study of the placenta is, retrospective in nature, yet it provides a reflection of hazards the foetus has been subjected to during its growth and development. Normally a placenta weighs from 400 to 800gms. This study observed the reduction of placental weight in the hypertensive disorders. Placental weight shows marked variation in all the groups and coefficient of variation was higher in severe PIH group but mean weight was less with increased severity of PIH. Baby weight shows marked variation in all the groups and coefficient of variation was increased with severity of PIH and mean weight was less with increased severity of

PIH. From the present study it can be concluded that, the pregnancy induced hypertension adversely influences the weight of the placenta and foetal out come. Thus placenta acts as an effective index by examination of which we can predict the status of Foetus in neonatal life as it can act as an indicator to the overall development of the Foetus in PIH cases.

Thus study of placental changes in pregnancy induced hypertension may help us to understand pathophysiological mechanisms and design treatment plans for better maternal and foetal outcome. Modern sophisticated techniques like ultrasonography have made it possible to study the necessary placental parameters in utero. This helps in assessing the foetal outcome and management.

#### REFERENCE:

1. Placenta [Internet]. 2014. [cited 2014 Jul 15]. Available from: <http://en.wikipedia.org/wiki/Placenta>.
2. Teasdale F. Gestational changes in the functional structure of the human placenta in relation to fetal growth: A morphometric study. Am J Obstet Gynecol., 1980; 137: 560-3.
3. Rahman H, Khalil M, Ferdousi R, Uddin M, Chowdhury MM, Sultana SZ, Mannan S. Micro vascular changes in the placenta of Bangladeshi overt diabetic mothers and hypertensive diabetic mothers. J Bangladesh Soc Physiol 2006; 1: 27-34.
4. Cunningham F, Leveno K, Bloom S, Hanth J, Rouse

- D, Spong C. Williams obstetrics. 23rd edition McGraw Hill Medical; 2009, Pregnancy hypertension; p. 706-756.
5. Raghavendra. A. Y, Vinay. K.V , Veena Pai. A study of placental weight and fetal outcome in different grades of pregnancy induced hypertension. Int J Anat Res 2014;2(4):625-629.
  6. Saddler TW : Langmans Medical Embryology, Ninth edition Lippincott Williams and Wilkins Company 2004 ; pp.51 -134.
  7. Cunningham E.Gary, et al Williams obstetrics 22nd edition. New York