The study of Apara (placenta) and its correlation with the Prakriti and Weight of newborn

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ABSTRACT

The placenta is the most important and the only organ between mother and foetus serving multiple functions like endocrinial, respiratory and metabolic. Normal development of the placenta is the one of the important requirements for a healthy pregnancy, regulating foetal growth and foetal health so that formation of the healthy progeny. In contemporary sciences many researches are going in the aim of formation of healthy progeny. Apara is the vital feature related to Garbha Sharira in Ayurveda, but its description is in a Sutra form. Hence this study is an humble attempt to explore the concept of ‘Ayurveda Garbha Sharira’ by studying the description of Apara trying to establishment of the assessment of correlation between features of placenta with that of Prakriti is more instinct for this study. Prakriti is the basic concept of Ayurveda. It forms in intrauterine life by combination of Shukra and Shonita. However we do not find direct references of Apara relation with the Prakriti of newborn in Ayurveda. This study intends to fill in the lacunae of both the disciplines by knowledge of integration. If this study establishes some parameters based on the characteristics of Apara with weight and Prakriti of newborn then it will be the unique contribution for Ayurveda Garbha Sharira.

Key words: Apara, Placenta, Prakriti, Newborn.

INTRODUCTION

Expert Chikitsaka (Physician) needs detail study of body and body parts. Shastra Adhyana (textual theoretical study) and practical both are essential for expanding the knowledge. In Ayurvedic Samhita (text book) and their commentaries Sharir description of some body parts and organs is given in poetic manner, it is variable in different Samhita and also deficit its complete anatomical description.[1] In Another side Prakriti is the basic concept of Ayurveda which is useful for information of the physiological and psychological constitution and well being of the human being. According to Sushruta the Prakriti is form at the time of union of Shukra and Shonit. The Prakriti constituted at the time of birth remains as it is throughout the life. So it is important to know the Prakriti of individual for normal and healthy life.[2]

Acharya Charaka also said the six factors which are responsible for formation of Prakriti. These are Shukraprakriti, Shonitapraprakriti, Kalaprakriti, Garbhashayprakriti, Maturahar-viharprakriti and Mahabhubavikarprakriti.[3] These six factors come under the prenatal factors. Some scholars have done research work about embryology according to Ayurvedic classics. Similarly one study “A study of the influence of the mother on the baby with special reference to Ahara and Chesta” has also been done.[4] As per available information the study of Apara (placenta) in relation with Prakriti and weight of newborn is not found. The growth and development of foetus depends upon Placenta.[5] Nourishment is important for normal physical and mental growth for

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an individual. Hence this study was initiated for finding some correlation of placenta with Prakriti of newborn.

**OBJECTIVES**

1. To study the relationship of Apara (placenta) weight with weight of newborn.
2. To study the correlation of morphological characteristics and weight of Apara (placenta) with the Prakriti of newborn.

**MATERIALS AND METHODS**

This is purely based on observation, so it is an observational study. Total 50 cases of full term normal delivery and L.S.C.S assess to placenta and newborns of the same cases were observed and studied.

**Materials required for Examination of Placenta**

1. Tooth forceps
2. Plane forceps
3. Scalpel with blade
4. Surgical scissor
5. Magnifying glass
6. Thread
7. Cap
8. Mask
9. Gloves
10. Weighing machine
11. Length measuring centimeter scale

The literature regarding the topic studied from relevant compendia of Ayurveda references obtained from Brihtrayee and other text books related to the study for primary sources of literature. Also related information was gathered from the text books of western medical science, different journals and previous studies conducted on related subject at different universities and information available on internet was incorporated for the study.

Present research has done for study the Apara and its correlation with Prakriti and weight of newborn by below method;

1. Pregnant lady information taken.
2. Weight, observation and study of placenta were taken after delivery.
3. Weight, circumference and Prakriti of newborn by observing and noting their parameters.

**Assessment of placental variables**

**Placental weight**

Gross Placenta (including umbilical cord and placental membranes) were weighed in grams in the operation unit.

**Placental shape**

The foetal surface of placenta was wiped dry and placed on clean surface after which the shape of each placenta was observed and described as either round, oval and irregular.

**Colour of Placenta**

The colour of the placenta was observed by using magnifying glass.

**Prakriti of newborn**

The newborns Prakriti was carried out by observing their parameters and recorded in the Prakriti chart of CRF.

**Statistical Analysis**

Statistical analysis was done by using descriptive and inferential statistics using student’s unpaired t test, One way ANOVA and Pearson’s correlation coefficient and software used in the analysis were SPSS 22.0 version and EPI-INFO 6.0 version and p<0.05 is considered as level of significance.

**Data collection**

The patients as stated above were examined as per CRF (Case Record Form). The information obtained was written in CRF and collected for analysis. This data was processed under statistical methods, interpreted and conclusions were drawn.
Inclusion criteria
1. All live birth access to Apara (placenta) irrespective of socio-economic status.
2. Delivery of baby with normal maternal condition.
3. Delivery of baby under normal gestational event.

Exclusion criteria
Any history of complication or uneventful gestational period.
1. Still birth
2. Placental abruption
3. Retained placenta
4. Multiple babies.
5. Any history of diabetes, hypertension, cancer, or any other serious contaminated diseases.

Observational Study
To study the Placenta and its correlation between the weight and Prakriti of newborn, 50 samples of placenta after delivery by L.S.C.S and F.T.N.D. without any complications were taken. To find out correlation between weight of placenta and weight of baby, morphology of placenta and Prakriti of baby the data was recorded under the columns of weight of placenta, morphology included shape, colour and diameter of placenta, weight and head circumference (H.C.) of baby, and Prakriti of baby. Different kind of data of 50 samples presented in view of charts and table as follows:

Graph 1: Weight wise distribution of the newborn.

Graph 2: Correlation between weight of the newborn and weight of placenta.

Graph 3: Correlation between weight of placenta and the Prakriti of babies.

Graph 4: Correlation between weight of babies and shapes of placenta.
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**Graph 5: Correlation between weight of placenta and its shape.**

![Graph 5: Correlation between weight of placenta and its shape.](image)

**Graph 6: Correlation between Prakriti of babies and the Colours of Placenta.**

![Graph 6: Correlation between Prakriti of babies and the Colours of Placenta.](image)

**Graph 7: Correlation between Prakriti of babies shape of placenta.**

![Graph 7: Correlation between Prakriti of babies shape of placenta.](image)

**DISCUSSION**

Delivery cases between age group of 19-31 years are included. This is crucial period for reproductive age and normal deliveries. The mean weight of 2.62 kg with SD of 0.36 kg is observed. This indicates that the deliveries included in this study were absolutely normal without any complications. Though the mean weight is in normal range, it is on its lower range. There is need to focus on nutritional supplements for pregnant women in this region. Out of 50 newborns, the male newborns are 29 (58%) and female newborns are 21 (42%). Thus the male newborn born were more than females. The variation in the ratio observed may be because of small sample size. Maximum 36 (72%) patients were from rural area. The reporting patients in this hospital are from rural area so the percentage of these patients are more. Among 50 womens 29 (58%) had FTND delivery and 21 (42%) were LSCS deliveries. Due to modifications in lifestyle and sedimentary work habits there seems to be increase in percentage of deliveries with LSCS. The placenta a was having range between 330gm - 620gm. The mean placental weight was 436gm and (SD=59.59). The value of mean weight of placenta is near to normal range of 500gm which indicates that the deliveries were normal and full term.\[^{[6]}\] The mean birth weight of newborn was 2.62kg (SD=0.36kg) is observed. This indicate that the deliveries included in the study were absolutely normal without any complications. Though the mean weight is normal range, it is on its lower range. There is need to focus on nutritional supplements for pregnant women in this region.

Approximately 68% (34), were the irregular placenta, 24% (12) were oval placenta, 8% (4) were round placenta respectively. F-value is non significant in this case which suggest that there is no correlation between shape of placenta and features of newborn. Similarly there is no correlation between shape and weight of placenta. Approximately 72% (36) were Maroon colour placenta and 28% (14) were red violet colour placenta. As ‘t’ value is non significant there is no correlation between colour of placenta and weight of newborn. Similarly there is no correlation between...
colour and weight of placenta. However maroon colour placenta were found in most of cases (36/50). The mean diameter of the 50 placenta were 15.04 cm. The diameter of placenta were ranging from 11 - 17.35cm. The diameter of the placenta may give an indication of the size of the placenta which in turn may give indirect information about the foeto-placental ratio. The diameter of the placenta affects the amount of nutrients, oxygen and carbon dioxide that will pass from the mother to the child and vice versa. Borton (2011) and Ohagwu et al. (2009) reported a term placental diameter range of 15 cm to 25 cm whilst Yetter (1998) reported a mean of about 22 cm. The mean diameter of placenta in this study is observed in lower limits of normal range. In proportion to this the mean weight of newbron is also seen within lower limit of normal range. It is observed in newborns of Pitta Prakriti. The head circumferences were ranging from 32.1 - 35.8cm. The mean head circumference was found to be 34.44cm. This observation is within normal range of head circumference, reflecting the normal growth of newborn. The Prakriti of newborns are found to be Kapha-Pitta, Kapha-Vata, Pitta-Kapha, Pitta-Vatta and Vata-Pitta. Among 50 newborns Kapha-Pitta Prakriti were 10 (20%), Kapha-Vata Prakriti were 2 (4%), Pitta-Kapha Prakriti were 11 (22%), Pitta-Vata Prakriti were 17 (34%), Vata-Pitta Prakriti were 10 (20%).

Discussions on Results

Correlation between the birth weight and the placenta weight.

There is no correlation between colour of placenta and Prakriti of a newborn as ‘p’ value is non significant. There is correlation between mean weight of the newborn with the Prakriti of newborn as F - value is significant. It is observed in newborns of Pitta Prakriti. The relationship of placenta and newborn weight was found to be 1:5. Correlation between the colour of placenta and Prakriti of newborn. There is no correlation between colour of placenta and Prakriti of newborn as p’ value is non significant.

Correlation between the shape of placenta and Prakriti of newborn

The correlation between shape of placenta and Prakriti of newborns was also studied, but no such significant association was observed. However 34 (68%) of placenta belongs to irregular shape. The shape or Akruti is of prime importance in the association of Dosha, but results was non-significant in the category.

CONCLUSION

Total 50 patients were selected for the study on the criteria mentioned in the methodology. The results are studied on the basis of data collected as per criteria (inclusion and exclusion) and statistically evaluated. After studying the relationship between Apara weight with weight of newborn we found that there is relation between both these characteristics and 1.59 ratio between weights and statistically significant. When the correlations of morphological characteristics with the Prakriti of newborn were studied, we found no significant relationship in these characteristics. The correlation of weight of Apara and Prakriti of newborn is found significant in our study.

REFERENCES


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