

COMPARATIVE STUDY TO ASSESS THE PLACENTAL WEIGHT AND FETAL OUTCOME IN NORMAL MOTHERS AND ANAEMIC MOTHERS DURING INTRANATAL PERIOD IN SELECTED HOSPITALS.

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ABSTRACT:

Introduction: The most common hematological condition that may occur during pregnancy is anemia. It is a decrease in the blood's oxygen carrying ability – a reduction in the number of red blood cells (RBC) or a low hemoglobin concentration.

Objectives: - 1) To assess the placental weight in normal mothers and anaemic mothers. 2) To assess the foetal outcome in normal mothers and anaemic mothers. 3) To compare the placental weight and foetal outcome in normal and anaemic mothers.

Methodology- It is an academic hospital-based study and it will be conducted among 60 mothers with normal and anaemic from AVBRH respectively. An observational checklist will be used to collect the data. Ethics approval was obtained from IEC, DMIMS (DMIMS(DU)/IEC/Dec - 2019/ 8638). The conclusion will be drawn from the results and will be published in peer reviewed journal.

Expected Results: The study will enhance the knowledge regarding the need and importance of proper diet among the women especially during pregnancy. Findings will also improve the importance of MCH programme which are organized by the Government of India regarding the prevention of anaemia.

Key words: Placental outcome, anemic mothers, normal mothers, fetal outcome.

INTRODUCTION: -

The most common hematological condition that may occur during pregnancy is anemia. It is a decrease in the blood's oxygen carrying ability – a reduction in the number of red blood cells (RBC), a low hemoglobin concentration, a mixture of both¹. Maternal anemia may affect placenta and fetal outcome, if the placenta has affected by anemia, there will be an impact on the growth and development of the fetus, as the placenta is an important developing organ that provides nutrients and oxygen to the fetus and allows the fetus to pass waste products to the blood of the mother. Neonates may get pathological conditions like, birth asphyxia, prematurity,

IUGR, low birth weight and also the placenta varies in its measures that includes its weight, morphometry, number of cotyledons and its thickness. So, a good placenta and fetal outcome is highly depends on the health of the mother².

BACKGROUND OF THE STUDY

The placenta (Greek, plakuos = flat cake) called Gross anatomical appearance on the basis of these organs. The placenta is a materno-fetal organ that starts to develop at blastocyst implantation, and is delivered at birth with the fetus. It provides energy, gas exchange, waste elimination, a source of hematopoietic stem cells, endocrine and immune support for the growth of the fetus during that 9 month span³.

The placenta serves as a filtering mechanism, transferring oxygen and nutrients from the body of the mother to the baby and removing carbon dioxide and waste materials from the baby into the body of the mother. The placenta also plays a major role in the development of hormones and releases hormones into the maternal and fetal circulations to influence pregnancy, metabolism, fetal growth and parturition. Earlier in developing countries women frequently become anemic during pregnancy due to rising demand for iron and vitamins. Fetuses face premature delivery, low birth weight due to lack of oxygen supply to placenta and fetus⁴.

Much like the other essential organs of the body, the placenta is subjected to various defects and diseases. Specific clinical conditions such as anemia, diabetes, hypertension and others have a harmful impact on placenta which sometimes leads to morphological changes. This can The health of the fetus is severely impaired, and even life. Some researchers noted that the placenta has substantial functional reserve capacity; it can fix any harm sustained with considerable ease. It has also its own compensatory mechanisms that help to reduce the ill effects of tissue damage as well as adverse maternal conditions such as anaemia. Placenta provides the most reliable record of an infant's prenatal experience. It undergoes numerous changes in weight, length, structure, shape and function over the gestation to sustain prenatal life⁵.

NEED FOR THE STUDY

Anaemia is not a major problem if we treated in time among pregnant women during antenatal visit; otherwise it adversely affects the placental and fetal outcome. The investigation realizes that more frequently anemic mothers get weak perinatal outcome and low placental weight compare to normal mothers. In pregnancy anaemia has tremendous effect on placental growth that leads to reduction in functions⁶.

Many studies have been performed on placental weight and fetal outcome with impact of maternal anaemia. There is a void in research literature in the Indian sense of the comparative analysis. A comparison and assessment of the placental weight and fetal outcome among normal and anaemic mothers was therefore felt appropriate.

METHODOLOGY

It is an academic hospital-based study and it will be conducted among 60 mothers with normal and anaemic from AVBRH respectively. An observational checklist will be used to collect the data.

INCLUSION CRITERIA:

- Normal mothers both primigravida and multipara with good obstetric history.
- Mothers with anaemia.
- Mothers who are willing to participate in the study.
- Mothers who are present at the time of the study
- Mothers who can speak and understand Hindi and English.

EXCLUSION CRITERIA:

- High risk mother other than anaemia.
- Mothers who are not present at the time of the study.
- Mothers delivering baby by LSCS.

SAMPLE SIZE

The sample size for this study is 60

RANDOMIZATION

All the participants will be assigned randomly by sequentially numbered system.

INTERVENTIONS

The aim of the study will be explained to all the participants, the placenta and the fetal outcome of 30 anemic mothers just after the delivery will be assessed by using observational checklist. Likewise, another 30 groups with normal mothers will be assessed and the placenta and fetal outcome in normal mothers and anemic mothers will be compared.

DATA MANAGEMENT AND MONITORING

The demographic data will be recorded. The placental weight and the fetal outcome will be assessed by using observational checklist and it will be compare the placental weight and foetal outcome in normal and anaemic mothers.

STATISTICAL ANALYSIS

SPSS software will be used for statistical analysis.

ETHICS AND DISSEMINATION

This study is approved by the Institutional Ethics Committee of DMIMS (DMIMS(DU)/IEC/Dec - 2019/ 8638). Proper information about the study will be given to all the participant and they will be requested to go through the consent form and sign on it if they agree to participate.

EXPECTED OUTCOMES/RESULTS

This study is planned to assess the placental weight and the fetal outcome in normal and anaemic mothers. The assessment will be done by using observational checklist.

CONCLUSION

Conclusion will be made from the result after statistical analysis is done.

DISCUSSION:

The placental weight in anemic mother is expected to be lower as compared to the placental weight of normal healthy mother. Also, the fetal outcome is expected to be much better in normal healthy mother as compared to anemic mother. The researcher wants to be certain on the weight difference and results in fetal outcome among the study group of normal mother and anemic mother. This study will help the researcher in identifying whether there is such expected difference among the study comparison group and will help in taking required intervention among the study group.

A study was conducted on A Comparative Study to Assess the Relationship of Placental Weight and Fetal Outcome among Normal and Anemic mothers in Tertiary Care Hospital Karad. In this study the researcher wanted to assess and compare placental weight and fetal outcome with selected demographic variables in both the selected group. The researcher used Purposive sampling technique and the sample consists of 62 anemic mothers and 62 normal mothers. The result of the study shows that increase in placental weight is directly proportional to the fetal weight and that anemic mothers tend to have lower placental weight and smaller baby as compared to normal mothers. Baliga et al conducted a study on estimation of malondialdehyde levels in serum and saliva of children affected with sickle cell anemia⁷. There are studies reported on Infant and Child nutrition in this region^{8,9}. Also a number of ongoing studies are reported by Khatib et al on early childhood development programs in low middle-income countries¹⁰⁻¹¹. Gupta et al discussed on spontaneity of neonatal gastric perforations¹². Kurhade et al discussed on neonatal hyperbilirubinemia¹³. Taksane Amar reviewed about the neonatal murmurs¹⁴ and acute respiratory infections¹⁵. Kashikar et al assessed fetal nasal bone length and nasofrontal angle in the second

trimester in Normal Indian pregnancies¹⁶. Singh et al conducted colour doppler evaluation in high-risk pregnancy and studied the perinatal outcomes¹⁷.

REFERENCES: -

1. Annamma Jacob, A Comprehensive Textbook of Midwifery & Gynecological Nursing. 5th edition; Jaypee brothers Medical Publishers Ltd;2019.page no-271.
2. A L Mudaliar , M K Krishna Menon. Clinical Obstetrics Kindle Edition; Universities Press (India) Pvt. Ltd (20 August 2018).
3. Placenta development – Embryology. Dec 4 – 2019. Available on https://embryology.med.unsw.edu.au/embryology/index.php/Placenta_Development
4. Bhavika Panchal, Jigna Parmar, CD Mehta. Morphological study of placental changes in anemia with its clinical significant. July 23, 2016. Available on <http://www.ijmsph.com/fulltext/67-1468992591.pdf>
5. PS Londhe , AB Mane . Morphometric study of placenta and its correlation in normal and hypertensive pregnancies. October 2011.International Journal of Pharma and Bio Sciences 2(4):429-437
6. Jyoti R. R. Dhagale, Jyoti A. Salunkhe, S. V. Kakade , Avinash H. Salunkhe , Vaishali Mohite, Ujawala Chopade. A Comparative Study to Assess the Relationship of Placental Weight and Fetal Outcome among Normal and Anemic Mothers Admitted in Tertiary Care Hospital Karad. Asian Journal of Pharmaceutical Research and HealthCare, Vol 9(4), 180-185, 2017.
7. Baliga, S., M. Chaudhary, S. Bhat, P. Bhansali, A. Agrawal, and S. Gundawar. “Estimation of Malondialdehyde Levels in Serum and Saliva of Children Affected with Sick Cell Anemia.” *Journal of Indian Society of Pedodontics and Preventive Dentistry* 36, no. 1 (2018): 43–47. https://doi.org/10.4103/JISPPD.JISPPD_87_17.
8. Uddin, S., H. Mahmood, U. Senarath, Q. Zahiruddin, S. Karn, S. Rasheed, and M. Dibley. “Analysis of Stakeholders Networks of Infant and Young Child Nutrition Programmes in Sri Lanka, India, Nepal, Bangladesh and Pakistan.” *BMC Public Health* 17 (2017). <https://doi.org/10.1186/s12889-017-4337-1>.
9. Kogade, Priti, Abhay Gaidhane, Sonali Choudhari, Mahalaqua Nazli Khatib, Umesh Kawalkar, Shilpa Gaidhane, and Quazi Syed Zahiruddin. “Socio-Cultural Determinants of Infant and Young Child Feeding Practices in Rural India.” *MEDICAL SCIENCE* 23, no. 100 (December 2019): 1015–22.
10. Khatib, Mahafroz, Mahalaqua Nazli Khatib, Mahjabeen Ahmed, Deepak Saxena, B. Unnikrishnan, Shilpa Gaidhane, Abhay M. Gaidhane, and Quazi Syed Zahiruddin. “Protocol on Causal Chain Analysis and Health Economic Modelling of Childhood Anaemia Interventions in Developing Countries - A Health Technology Assessment.” *JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS* 8, no. 51 (December 23, 2019): 3899–3903. <https://doi.org/10.14260/jemds/2019/845>.
11. Khatib, Mahalaqua Nazli, Mahjabeen Ahmed, Deepak Saxena, B. Unnikrishnan, Shilpa Gaidhane, Abhay M. Gaidhane, and Quazi Syed Zahiruddin. “Protocol for a Systematic Review of Effects of Parenting Interventions on Early Childhood Development in Low- and Middle-Income Countries.” *JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS* 8, no. 52 (December 30, 2019): 4005–10. <https://doi.org/10.14260/jemds/2019/866>.
12. Gupta, Gaurav, Sachin Kumar, Sangeeta Gupta, K. B. Golhar, and Swapnil Deshpande. “Neonatal Gastric Perforations: Are They Really Spontaneous?” *INDIAN JOURNAL OF SURGERY* 76, no. 4 (August 2014): 319–20. <https://doi.org/10.1007/s12262-013-0980-7>.
13. Kurhade, Krutika Arvind, and Sadhana Purandare. “Twenty-Four Hours’ Transcutaneous Bilirubin as a Predictor of Subsequent 3(Rd) Day Neonatal Hyperbilirubinemia.” *JOURNAL OF CLINICAL NEONATOLOGY* 6, no. 1 (March 2017): 6–9. <https://doi.org/10.4103/2249-4847.199752>.
14. Taksande, Amar. “Neonatal Heart Murmur: Is It Useful for the Diagnosis of Congenital Heart Diseases?” *WORLD JOURNAL OF PEDIATRICS* 10, no. 1 (February 2014): 91. <https://doi.org/10.1007/s12519-014-0463-3>.
15. Taksande, Amar M., and Mayuri Yeole. “Risk Factors of Acute Respiratory Infection (ARI) in under-Fives in a Rural Hospital of Central India.” *JOURNAL OF PEDIATRIC AND NEONATAL INDIVIDUALIZED MEDICINE* 5, no. 1 (April 2016). <https://doi.org/10.7363/050105>.
16. Kashikar, Shivali V., and Bhushan N. Lakhkar. “Assessment of Fetal Nasal Bone Length and Nasofrontal Angle in the Second Trimester in Normal Indian Pregnancies.” *JOURNAL OF FETAL MEDICINE* 1, no. 3 (September 2014): 137–41. <https://doi.org/10.1007/s40556-015-0026-2>.

17. Singh, Harshika, Manjusha Agrawal, Arvind Bhake, and Nihar Gupta. "COLOUR DOPPLER EVALUATION IN HIGH-RISK PREGNANCY AND PERINATAL OUTCOME." *JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS* 7, no. 43 (October 22, 2018): 4603–8. <https://doi.org/10.14260/jemds/2018/1027>.