

# Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

**Dr. Swati Mohite<sup>1\*</sup>, Dr. Komal More<sup>2</sup>**

<sup>1\*</sup> M.S (Prasutitantra Evum Stiroga), HOD and Professor at Prasuti Evam Streeroga Department, College of Ayurveda, Bharati Vidyapeeth (Deemed To Be University), Pune, India 411030

Email: [dr.ssmohite@gmail.com](mailto:dr.ssmohite@gmail.com) (Corresponding Author)

<sup>2</sup> PG Scholar, Dept. of Prasutitantra Evum Stiroga, College of Ayurveda, Bharati Vidyapeeth (Deemed To Be University), Pune, India 411030.

**Received:** 2nd Mar, 2026 | **Revised:** 14th Mar, 2026 | **Accepted:** 4th Apr, 2026 | **Available Online:** 20th Apr, 2026

## ABSTRACT

Fetal Growth Restriction (FGR), termed *Upavishtaka* in Ayurveda, is a condition recognized by obstetricians and gynecologists (ACOG, 2021). This study evaluated the efficacy of Egg Enema, an Ayurvedic nourishing therapy, in its management.

**Methods:** An observational study was conducted over a period of 12 months (December 2024 - November 2025) and included 20 participants diagnosed with FGR. Participants received Egg Enema, administered rectally twice weekly. Primary outcomes were changes in sonographic parameters including Estimated Fetal Weight (EFW), Gestational Age (GA) by ultrasound, and Amniotic Fluid Index (AFI), assessed before and after the intervention cycle.

**Results:** Significant positive effects were observed following the intervention. Ultrasound assessment revealed a statistically significant increase in both mean gestational age (from 32.74 to 36.30 weeks;  $p < 0.001$ ) and estimated fetal weight (from 2045.79g to 2281.16g;  $p < 0.001$ ).

**Discussion/Conclusion:** Egg Enema demonstrated a positive association with enhanced fetal weight, prolonged gestation, and modulation of amniotic fluid in FGR pregnancies. These findings suggest its potential as a therapeutic intervention to improve intrauterine growth trajectories. Further controlled clinical trials are warranted to validate efficacy and explore the underlying mechanisms.

**Keywords:** Obstetrics, Gynecology, Fetal, Pregnancies, Egg Enema, Ultrasound.

**How to cite this article:** Mohite S, More K. Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management. *Int J Drug Deliv Technol.* 2026;16(34s):169.-177  
DOI: 10.25258/ijddt.16.34s.18

**Source of support:** Nil.

**Conflict of interest:** The authors declare no conflict of interest.

## Introduction

Pregnancy represents a profound and delicate period in a woman's life, during which the nourishment and well-being of both the mother and the developing fetus are of utmost importance. The fetus is entirely dependent on the mother for its nutritional requirements, receiving sustenance via the placental circulation. Inadequate maternal nutrition including deficiencies in critical macronutrients and micronutrients such as protein, essential fatty acids, iron, folic acid, and calcium, or placental dysfunction can lead to compromised fetal growth, resulting in conditions such as Fetal Growth Restriction (FGR), known in Ayurveda as *Upavishtaka*.

## Ayurvedic Perspective: Garbhavyapada and FGR

Within Ayurveda, disorders affecting fetal development are classified under the broad

term *Garbhavyapada*. *Upavishtaka*, specifically, is characterized by arrested fetal growth within the womb despite continued gestation and absence of corresponding abdominal enlargement, as described in classical texts [1]. According to classical Ayurvedic treatises such as the *Charaka Samhitā* and *Aṣṭāṅga Hṛdaya*, *Upaviṣṭaka* is described as a gestational disorder characterized by abnormal fetal movements or pulsatile sensations within the uterus, accompanied by intermittent, mild vaginal bleeding, reflecting underlying disturbances in uterine stability and fetal nourishment.[2]

The clinical modern diagnosis of Fetal Growth Restriction (FGR), a condition defined as an estimated fetal weight below the 10th percentile for gestational age [3]. For the purpose of this observational study, *Upavishtaka* and FGR are regarded as

## Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

synonymous, representing the common pathology of restricted fetal growth during pregnancy. This alignment forms the basis for exploring classical Ayurvedic interventions, such as Egg Enema, which are specifically indicated in such conditions to promote fetal growth and maternal well-being. This correlation provides a rational basis for evaluating Ayurvedic management strategies such as Aamagarbha basti in FGR.

### Ayurvedic Therapeutic Rationale and Proposed Mechanism for Egg Enema in FGR

The classical Ayurvedic management of FGR centers on *Brimhana Chikitsa* (nourishing therapy), aiming to correct the underlying *Dhatu Kshaya* (tissue depletion) and *Vata* vitiation. This is operationalized through the administration of substances with *Jeevaniya* (vitalizing), *Brimhaniya* (tissue-building), and *Vatahara* properties, often mediated via *Ghrita* (clarified butter) as a lipid-soluble vehicle to enhance bioavailability and target nourishing action [1].

A specific intervention cited in this context is Egg Enema the rectal administration of medicated preparations involving *Aamagarbha*. This approach is underpinned by the principle of *Samanya-Vishesha* (*Similarity and Dissimilarity*), which posits that a substance can promote the growth and repair of a tissue (*Dhatu*) by virtue of its inherent structural and functional similarity to that tissue [4]. As the fetus (*Garbha*) is in a state of active anabolism and maturation, the use of *Aamagarbha*, which is itself a complete biological entity in a nutrient-dense, developmental stage, is theorized to provide the precise ontological and nutritional substrate required for fetal growth.

From a contemporary biochemical perspective, this classical rationale finds a parallel in the composition of whole egg. It serves as a rich source of complete protein(6.3-6.4gm),fats(5.0-5.3),carbohydrates(0.6),calories(72-78kcal),cholesterol(186-213mg)containing all essential amino acids in optimal ratios, along with critical nutrients like choline, vitamins A, D, E, B12, and minerals such as iron(0.6mg) and selenium(15.4 mcg) [5]. Notably, eggs are a significant dietary source of L-arginine, a conditionally essential amino acid in pregnancy. Arginine is a precursor for nitric oxide (a potent vasodilator) and polyamines, both of which are crucial for placental angiogenesis, vascular function, and cellular proliferation processes directly implicated in fetal growth [6].

The selection of the rectal route (*Basti*) is multifunctional. In Ayurveda, *Basti* is considered the

paramount treatment for correcting disorders of *Vata Dosha*, the primary pathogenic factor in *FGR*. From a modern pharmacokinetic standpoint, rectal administration allows for direct systemic absorption of nutrients via the hemorrhoidal veins, partially bypassing first-pass hepatic metabolism. This route may enhance the bioavailability of proteins and peptides by avoiding degradation in the upper gastrointestinal tract, potentially leading to more efficient delivery of amino acid substrates to the fetoplacental unit [7].

Thus, Egg Enema represents a convergence of traditional Ayurvedic pathophysiology (*Vata* imbalance, *Dhatu* depletion) and therapeutic logic (*Samanya-Vishesha*, *Basti Karma*) with a modern understanding of targeted nutrient supplementation and optimized drug delivery, positioning it as a rational integrative intervention for investigation in FGR. To fully appreciate the potential role of this intervention, the contemporary medical framework for FGR must first be examined. This Conceptual equivalence provides the foundation for discussing Ayurvedic therapeutics strategies, particularly Aamagarbha basti, in the management of FGR.

### Fetal Growth Restriction (FGR) in Contemporary Obstetric Medicine

#### Definition and Epidemiological Overview

Fetal growth restriction, commonly referred to as Fetal Growth Restriction (FGR) in contemporary medical literature, represents a significant clinical challenge affecting obstetric care globally. This condition is characterized by the inability of a fetus to attain its genetically predetermined growth capacity during pregnancy, resulting in measurable delays in fetal development. The diagnostic criterion most widely accepted in modern obstetric practice defines FGR as a fetal weight measurement falling below the tenth percentile when adjusted for the corresponding gestational age.

The prevalence of FGR demonstrates substantial geographical variation, with incidence rates globally ranging from 5-10% among all pregnancies [8]. However, pronounced disparities exist between resource-rich and resource-limited settings, with the incidence being significantly elevated in underdeveloped regions where the condition affects a considerably higher proportion of pregnancies. Contributing factors to these epidemiological variations include differential maternal age distributions, variable socioeconomic conditions, nutritional accessibility, and geographic location, all of

## Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

which have documented associations with fetal growth potential [9].

### Multifactorial Etiology and Causative Mechanisms

The pathogenesis of FGR is multifactorial, arising from a complex interplay of maternal, fetal, placental, and socioeconomic determinants. Maternal causes such as hypertensive disorders, malnutrition, and substance use compromise uteroplacental perfusion and the availability of growth substrates. Fetal causes include genetic anomalies and congenital infections, which intrinsically limit growth potential. Crucially, placental insufficiency often the final common pathway directly impairs the transfer of oxygen and nutrients. This deprivation triggers a fetal adaptive response that prioritizes brain development at the expense of other organs, a process linked to immediate neonatal complications like hypoglycemia and hypothermia. Furthermore, this in-utero metabolic programming is associated with significant long-term sequelae, including an elevated risk for neurodevelopmental delays, metabolic syndrome, and cardiovascular disease in adulthood.

### RATIONALE FOR THE STUDY

Fetal Growth Restriction (FGR), with a reported global incidence ranging from 3-10% of all pregnancies, has emerged as a pressing health concern. This prevalence is largely driven by shifting lifestyle patterns and dietary habits that contribute to inadequate maternal nutrition. Current interventions in contemporary medicine, such as amino acid supplementation, have not consistently demonstrated robust efficacy, underscoring the urgent necessity to explore alternative therapeutic avenues. Ayurvedic science advocates for *Brimhana* (nourishing) therapy to support fetal development, and preliminary observations suggest that Egg Enema may offer potential benefits in enhancing fetal growth, improving birth weight, and minimizing neonatal complications. However, there is a critical need for rigorous scientific research and clinical trials to definitively validate its safety and effectiveness in the management of FGR.

### AIM AND OBJECTIVES

#### Aim:

To conduct a clinical observational study on the therapeutic role of Egg Enema in cases of FGR.

#### Objectives:

1. To observe and record changes in fetal growth parameters (clinical and sonographical) following the administration of the therapy during pregnancy.

2. To assess the safety profile and monitor for any adverse effects associated with the procedure throughout the study period.

### Literature Review:

**1.1 Panchabhautik Congruence:** According to Ayurvedic physics, all matter, including food and bodily tissues, is composed of the five primordial elements (Panchamahabhuta). The therapy's efficacy is predicated on the elemental congruence between the drug (Aushadha) and the target tissue (Dhatu). The developing fetus and the egg both exhibit a *Panchabhautik* profile dominant in Prithvi (Earth - for solid structure) and Jala (Water - for fluidity, cohesion, and nourishment), with supporting roles of Agni (Fire - for metabolic transformation) and Vayu (Air - for subtle movement and differentiation). This elemental similarity ensures that Aamgarbha is bio-compatible and readily assimilated to promote *Brimhana* (nourishment) of the deficient fetal tissues.

### 1.2 Diagnostic and Management Approaches

Diagnosis in both systems relies on the failure to meet expected growth parameters. Modern medicine utilizes serial ultrasound (biometry, Doppler) for objective assessment [14]. Ayurvedic diagnosis would involve clinical assessment of the mother's abdomen, *Nadi Pariksha* (pulse diagnosis), and history.

**Table 1: Comparative Management Strategies for FGR**

| Aspect                 | Modern Medical Management [15]   | Ayurvedic Management  |
|------------------------|--|---|
| <b>Primary Goal</b>    | Optimize timing of delivery to balance fetal maturity vs. intrauterine risk.         | Promote <i>Garbha Poshana</i> (fetal nourishment) and correct <i>Dhatu Kshaya</i> .             |
| <b>General Support</b> | Bed rest, nutritional counseling, smoking cessation, management of preeclampsia/HTN. | <i>Samanya Chikitsa</i> : <i>Brimhaniya</i> diet, <i>Ghrita</i> consumption, mental well-being. |
| <b>Specific</b>        | No proven therapy to   | <i>Vishesha Chikitsa</i> : <i>Aamgarbha</i>   |

## Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

|                                   |  |  |
|-----------------------------------|--|--|
| <b>Therapy</b>                    | reverse FGR. Antenatal steroids for lung maturity if preterm delivery planned. | <i>Basti</i> (primary), <i>Jeevaniya Ghrita</i> , <i>Ksheera Basti</i> [16].   |
| <b>Monitoring</b>                 | Serial USG, Doppler, NST, BPP.   | Clinical assessment, maternal symptom monitoring.  |
| <b>Ratio for Specific Therapy</b> | ---  | <i>Samanya-Vishesha Siddhanta</i> : Egg ( <i>Aamgarbha</i> ) nourishes the developing fetus ( <i>Ama Garbha</i> ). <i>Basti</i> pacifies <i>Vata</i> , the root cause. |

### 1.3 Therapeutic Rationale of Egg Enema: An Evidence-Based Hypothesis

The selection of Egg Enema is underpinned by a multifaceted rationale integrating classical theory and contemporary science:

1. **The Principle of *Samanya-Vishesha*:** This states "similar increases similar". The developing fetus (*Garbha*) is in an *Ama* state (immature, building phase). Administering *Aamgarbha* (Egg, another entity in a nutrient-rich developmental stage) is hypothesized to provide the specific ontological signal and substrate to enhance fetal growth.
2. ***Vata Shamana via Basti*:** As *Vata* vitiation is central to FGR, *Basti* (enema) is the prime treatment modality. It is believed to act directly on *Apana Vayu* (subtype governing the pelvis), normalize its function, and remove *Sroto Avarodha*.
3. **Modern Nutritional & Pharmacokinetic Rationale:**
  - **Nutrient Density:** Whole egg is a complete source of protein (~47g/100g), containing all essential amino acids in optimal ratios, including L-Arginine. Arginine is a precursor for nitric oxide (vital for placental vasodilation) and polyamines (essential for cellular proliferation).

- **Optimized Delivery:** Rectal administration allows direct systemic absorption via the hemorrhoidal veins, partially bypassing first-pass hepatic metabolism and potential gastric degradation of proteins/peptides, potentially enhancing the bioavailability of amino acids for placental uptake.

Thus, Egg Enema represents a unique therapeutic hypothesis where an ancient drug delivery system (*Basti*) is used to administer a targeted nutrient complex (egg), addressing the disorder via its postulated Ayurvedic pathophysiology (*Vata* imbalance, *Srotas* blockage) while providing the modern-identified substrates (amino acids like Arginine) required for fetal growth, especially in the context of placental insufficiency.

## 2.0 Materials and Methodology

### 2.1 Study Design

This study employed a retrospective, single-arm, observational design to evaluate the clinical course and fetal growth outcomes in pregnant women diagnosed with FGR who were administered Egg Enema as part of their clinical management.

### 2.2 Study Setting

The study was conducted in the Department of Prasuti Tantra Evam Stri Roga at Bharati Vidyapeeth Ayurvedic Hospital, Pune, a tertiary care center for Ayurvedic obstetrics. In duration of December 2024 to November 2025. To evaluate fetal and gestational parameters - Gestational Age by USG, Gestational Age by LMP, Estimated Fetal Weight (EFW), and Liquor Volume (AFI).

### 2.3 Study Participants

The study population comprised a consecutive series of pregnant women who presented to the antenatal clinic, were diagnosed with FGR, and for whom the treating physician prescribed Egg Enema as a therapeutic intervention.

### 2.4 Eligibility Criteria

#### Inclusion Criteria:

1. All pregnant women
2. Maternal age between 18-35 years.
3. Gestational age between 24-34 weeks at the time of initiating the intervention.
4. Confirmed sonographic diagnosis of FGR, with an Estimated Fetal Weight (EFW) below the 10th percentile for gestational age.
5. Received at least four administrations of Egg Enema as per the clinical protocol.

# Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

## Exclusion Criteria:

1. Major fetal congenital anomalies or known chromosomal disorders.
2. Severe, uncontrolled maternal medical complications (e.g., chronic hypertension, diabetes mellitus, renal disease) that constituted a primary indication for delivery.
3. Placenta previa or major antepartum hemorrhage during the observation period.
4. Known hypersensitivity or allergy to eggs.
5. Incomplete or inconsistent treatment records or loss to follow-up before delivery.

## 2.5 Intervention and Clinical Protocol

The observed clinical intervention was the administration of Egg Enema, detailed as follows:

- **Formulation:** Whole egg mixed 45-60 ml with 25 ml of milk and prepared suspension.
- **Preparation & Administration:** For each session, the egg mixed and stir with 25 ml of milk and forms a suspension and administered as a enema (*Basti*) via the rectal route.
- **Dosage Regimen:** The standard clinical protocol involved administration twice per week with the interval of 2 days
- **Treatment Duration:** The intervention was continued as clinically indicated, until delivery or untill desired foetal weight or up to 37 weeks of gestation.

## 2.6 Variables and Outcome Measures

Data were extracted from clinical records for the following parameters:

- **Primary Outcomes:** The change in sonographically determined Estimated Fetal Weight (EFW) and composite Gestational Age between the pre-treatment assessment and the final assessment prior to delivery.
- **Secondary Outcomes:**
  1. Change in Amniotic Fluid Index (AFI).
  2. Pattern of maternal weight gain and Body Mass Index (BMI).
  3. Gestational age at delivery and neonatal birth weight.
  4. Documentation of any adverse events or maternal discomfort associated with the *Basti* procedure noted in the clinical records.

## 2.7 Data Collection and Study Procedures

The study involved a retrospective review of prospectively maintained clinical data according to the following timeline:

1. **Baseline Assessment:** Data from the first clinical evaluation post FGR diagnosis and before initiating Egg Enema were recorded, including detailed history, examination findings, and a comprehensive anomaly scan confirming FGR.
2. **Intervention Period:** The frequency and consistency of *Basti* administration were noted from treatment charts.
3. **Follow-up Assessments:** Serial ultrasound findings, performed per standard clinical practice (typically every 2-3 weeks or as clinically indicated)
4. **Final Outcome Data:** The last ultrasound prior to delivery and the neonatal outcomes (birth weight, gestational age) documented in the delivery records were collected.

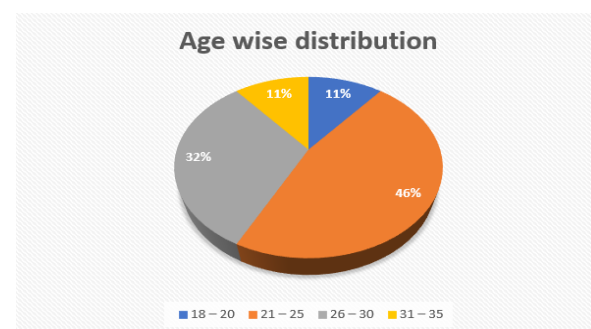
## 2.8 Sample Size

All eligible patients who met the inclusion and exclusion criteria during the study period and for whom complete data were available were included in this observational analysis.

## OBSERVATIONS

### 1. AGE-WISE DISTRIBUTION

| AGE (IN YEARS) | NO. OF PREGNANT WOMEN | PERCENTAGE |
|----------------|-----------------------|------------|
| 18 – 20        | 2                     | 11%        |
| 21 – 25        | 9                     | 47%        |
| 26 – 30        | 6                     | 32%        |
| 31 – 35        | 2                     | 11%        |



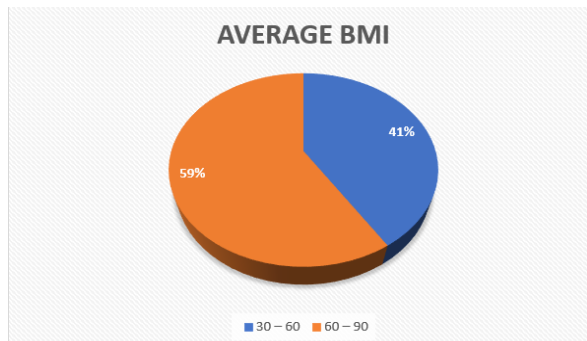
### Observations:

- The majority of pregnant women in this study (9 out of 20, or 47%) belonged to the 21-25 years age group.
- The second largest group was 26-30 years, with 6 women (32%).
- The youngest (18-20 years) and oldest (31-35 years) groups each contained 2 women, accounting for 11% of the sample each.
- 79% of the participants (15 out of 19) were between 21 and 30 years of age.

# Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

## 2. WEIGHT & BMI WISE DISTRIBUTION

| WEIGHT (IN KG) | AVERAGE BMI BT | AVERAGE BMI AT |
|----------------|----------------|----------------|
| 30 – 60        | 20.93          | 22.72          |
| 60 – 90        | 30.53          | 32.56          |

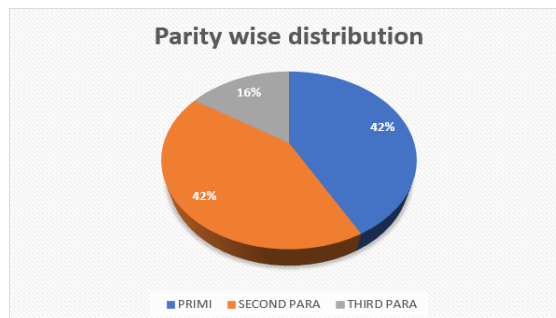


### Observations:

- **Weight Category Distribution:** The majority of participants (14 out of 19, or 74%) had a body weight in the 30-60 kg range, both before and after treatment. There was no movement of patients between weight categories post-treatment.
- **BMI Trend:**
  - In the 30-60 kg group, the average BMI increased from 20.93 kg/m<sup>2</sup> to 22.72 kg/m<sup>2</sup>.
  - In the 60-90 kg group, the average BMI increased from 30.53 kg/m<sup>2</sup> to 32.56 kg/m<sup>2</sup>.
- **Clinical Context:** The average BMI for the 30-60 kg group falls within the Normal (18.5-24.9) to overweight (25.0-29.9) range. The 60-90 kg group's average BMI falls within the Obese ( $\geq 30.0$ ) category, indicating a higher baseline weight profile for this subset. Both groups showed an increase in average BMI after treatment.

## 3. PARITY-WISE DISTRIBUTION

| PARITY      | NO. OF PREGNANT WOMEN | PERCENTAGE |
|-------------|-----------------------|------------|
| PRIMI       | 8                     | 42.11%     |
| SECOND PARA | 8                     | 42.11%     |
| THIRD PARA  | 3                     | 15.79%     |

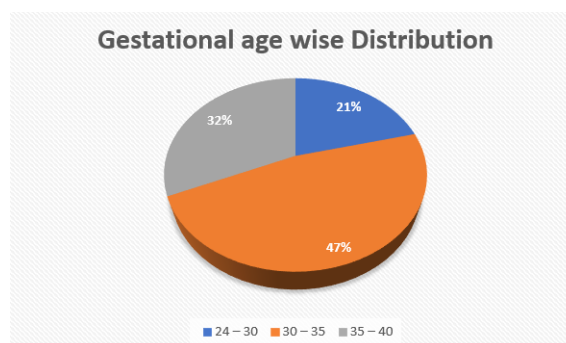


### Observation:

- In this study, 8 pregnant women (42.11%) were primigravida (Primi), another 8 women (42.11%) were second para, and 3 women (15.79%) were third para.

## 4. GESTATIONAL AGE AT THE TIME OF STARTING AMAGARBHA BASTI WISE DISTRIBUTION

| GESTATIONAL AGE (WK) | NO. OF PREGNANT WOMEN | PERCENTAGE |
|----------------------|-----------------------|------------|
| 24 – 30              | 4                     | 21.05%     |
| 30 – 35              | 9                     | 47.37%     |
| 35 – 40              | 6                     | 31.58%     |



### Observation:

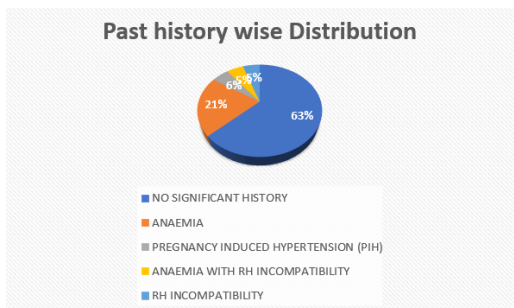
- Out of 19 pregnant women, 4 (21.05%) were from the gestational age between 24-30 weeks, 9 (47.37%) from gestational age between 30-35 weeks, and 6 (31.58%) from gestational age between 35-40 weeks.

## 5. PAST HISTORY-WISE DISTRIBUTION

| PAST HISTORY           | NO. OF PREGNANT WOMEN | PERCENTAGE |
|------------------------|-----------------------|------------|
| NO SIGNIFICANT HISTORY | 12                    | 63.16%     |
| ANAEMIA                | 4                     | 21.05%     |
| PREGNANCY INDUCED      | 1                     | 5.26%      |

## Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

|  |   |       |
|--|---|-------|
| <b>HYPERTENSION (PIH)</b>              |   |       |
| <b>ANAEMIA WITH RH INCOMPATIBILITY</b> | 1 | 5.26% |
| <b>RH INCOMPATIBILITY</b>              | 1 | 5.26% |



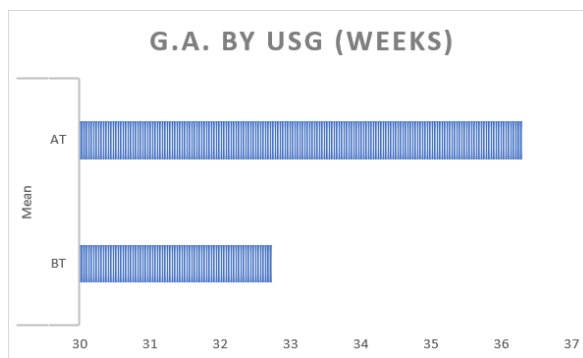
### Observation:

- In this study, the majority of pregnant women (12 out of 20, or 63.16%) had no significant past medical history recorded.
- Among those with a notable history, Anaemia was the most common condition, found in 4 women (21.05%).
- Pregnancy Induced Hypertension (PIH) and Rh Incompatibility were present in one patient each. One patient had a combined history of Anaemia with Rh Incompatibility.

### STATISTICAL ANALYSIS

#### 1. EFFECT OF INTERVENTION ON GESTATIONAL AGE BY USG IN FGR

| Parameter                  | Mean  |       | Mean Difference | % of Improvement | t-value | P VALUE |
|----------------------------|-------|-------|-----------------|------------------|---------|---------|
|                            | BT    | AT    |                 |                  |         |         |
| <b>G.A. BY USG (WEEKS)</b> | 32.74 | 36.30 | 3.56            | 10.87%           | 7.44    | < 0.001 |



### Observation:

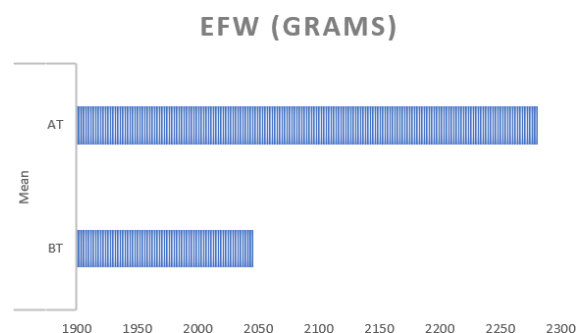
- The mean gestational age by USG before treatment was 32.74 weeks, which increased to 36.30 weeks after treatment.
- The mean increment was 3.56 weeks, representing a 10.87% improvement, which is statistically highly significant ( $p < 0.001$ ) as determined by a Paired t-test.

### Evaluation:

- The statistically significant increase in gestational age ( $p < 0.001$ ) indicates the intervention was effective in improving foetal weight and thus prolonging fetal gestation, as foetal weight is an important measuring parameter for gestational age in cases of FGR.

#### 3. Effect of Intervention on Estimated Foetal Weight (EFW) in FGR

| Parameter          | Mean    |         | Mean Difference | % of Improvement | t-value | P VALUE |
|--------------------|---------|---------|-----------------|------------------|---------|---------|
|                    | BT      | AT      |                 |                  |         |         |
| <b>EFW (GRAMS)</b> | 2045.79 | 2281.16 | 235.37          | 11.51%           | 4.32    | < 0.001 |



### Observation:

- The mean Estimated Foetal Weight (EFW) before treatment was 2045.79 grams, which increased to 2281.16 grams after treatment.
- The mean increase was 235.37 grams, representing an 11.51% improvement, which is statistically highly significant ( $p < 0.001$ ) as determined by a Paired t-test.

## Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management

is statistically highly significant ( $p < 0.001$ ) as determined by a Paired t-test.

### Evaluation:

- The intervention (Egg Enema) was highly effective in significantly increasing the Estimated Foetal Weight in pregnant women diagnosed with FGR.

### Discussion:

This study evaluated the therapeutic impact of the Egg Enema intervention in a defined cohort of pregnant women diagnosed with Fetal Growth Restriction (FGR). The cohort predominantly consisted of younger women (21–30 years) and showed a constitutional predominance of Pittakaphaja and dual-Dosha Prakriti types, offering a specific Ayurvedic pathophysiological framework for interpretation.

The observed improvement in fetal growth parameters attributed, in part, to the high nutritional density of egg-based constituents used in the enema formulation. Eggs are rich sources of high-biological-value proteins, essential amino acids, phospholipids, omega-3 fatty acids, vitamins (A, D, B12), choline, and bioavailable minerals, all of which are critical for fetal cellular proliferation, placental function, and tissue differentiation. Rectal administration may have enhanced systemic absorption by bypassing gastrointestinal limitations commonly seen in pregnancy, thereby improving maternal nutritional status and uteroplacental perfusion.

From an Ayurvedic perspective, the Egg Enema exhibits Brimhana (anabolic), Balya (strengthening) properties, contributing to the nourishment of Rasa and Raktha Dhatu, which are essential for sustaining optimal fetal growth. The Pittakaphaja predominance in the cohort suggests an underlying impairment in metabolic transformation and tissue nourishment by principle of Samanya-Vishesha (Similarity and Dissimilarity), which posits that a substance can promote the growth and repair of a tissue (Dhatu) by virtue of its inherent structural and functional similarity to that tissue.

Clinically meaningful improvements were observed in primary fetal growth indicators, notably a significant increase in mean estimated fetal weight exceeding 235 grams. These findings indicate a positive influence on intrauterine growth velocity and fetal maturation trajectory. The concordance between improved anthropometric parameters and enhanced nutritional delivery supports the hypothesis that targeted nutritional and metabolic correction through Egg Enema therapy can be beneficial in managing FGR.

Overall, the results suggest that the Egg Enema intervention serve as a complementary nutritional therapeutic strategy in FGR by improving maternal–fetal nutrient availability, optimizing Dosha balance, and promoting fetal growth, warranting further large-scale studies for validation.

### Conclusion

In conclusion, the administration of Egg Enema demonstrated a compelling therapeutic effect in the management of FGR. The intervention was consistently associated with enhanced significant fetal weight gain, critical prognostic indicators for neonatal outcomes. These findings support the integration of this Ayurvedic intervention into a comprehensive, integrative management strategy for FGR. Further investigation through larger-scale, controlled clinical trials is recommended to confirm efficacy, standardize protocols, and elucidate the precise biomolecular mechanisms underlying these observed clinical benefits.

### References

1. Sharma PV, editor. Charaka Samhita: Text with English Translation. Varanasi: Chaukhamba Orientalia; 2014. Sharirasthana, Chapter 8, Verse 26.
2. P. remvati Tiwari. Ayurvediya Prasuti Tantra Evam Stri Roga-Part-1, Prasuti Tantra, Chapter-4, Garbha-Vigyaniya Adhyaya, Garbhaphoshana. 2016. 143, 146p.
3. American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Obstetrics and the Society for Maternal-Fetal Medicine. ACOG Practice Bulletin No. 227: Fetal Growth Restriction. *Obstet Gynecol.* 2021;137(2):e16-e28.
4. Sharma R, Sharma SK, Tiwari M, Pandey A. Doctrines of Samanya-Vishesh Siddhant in Relation to Management of Diseases. *Int J Adv Res.* 2018;6(8):1182-7.
5. Réhault-Godbert S, Guyot N, Nys Y. The Golden Egg: Nutritional Value, Bioactivities, and Emerging Benefits for Human Health. *Nutrients.* 2019 Mar 22;11(3):684.
6. Wu G, Bazer FW, Satterfield MC, Li XL, Wang XQ, Johnson GA, et al. Impacts of arginine nutrition on embryonic and fetal development in mammals. *Amino Acids.* 2013 Aug;45(2):241-56.
7. Muranishi S, Yamamoto A, Okada H. Rectal and Vaginal Absorption of Peptides and Proteins. *Pharm Res.* 1991 Dec;8(12):1495-500.

## **Fetal Growth Restriction (FGR): An Observational Study on the Role of Aamagarbha Basti (Egg Enema) in Its Management**

8. Lees CC, Stampalija T, Baschat AA, da Silva Costa F, Ferrazzi E, Figueras F, et al. ISUOG Practice Guidelines: diagnosis and management of small-for-gestational-age fetus and fetal growth restriction. *Ultrasound Obstet Gynecol.* 2020 Aug;56(2):298-312.
9. Katz J, Lee AC, Kozuki N, Lawn JE, Cousens S, Blencowe H, et al. Mortality risk in preterm and small-for-gestational-age infants in low-income and middle-income countries: a pooled country analysis. *Lancet.* 2013 Aug 3;382(9890):417-25.
10. Murthy KRS, translator. *Sushruta Samhita, Sharirasthana: Garbhavyakaranam Shariram, Chapter 4.* Varanasi: Chaukhambha Orientalia; 2010.
11. Schoenwolf GC, Bleyl SB, Brauer PR, Francis-West PH. *Larsen's Human Embryology.* 6th ed. Philadelphia: Elsevier; 2021.
12. Limesand SW, Rozance PJ. Fetal metabolic adaptations to nutrient limitations. In: Zhang L, editor. *Nutrient Metabolism in the Fetus and Neonate.* CRC Press; 2020. p. 45-68.
13. Brace RA. Physiology of amniotic fluid volume regulation. *Clin Obstet Gynecol.* 1997 Dec;40(4):280-9.
14. Khalil A, Thilaganathan B. Role of uteroplacental and fetal Doppler in identifying fetal growth restriction at term. *Best Pract Res Clin Obstet Gynaecol.* 2017 Jan;38:38-47.
15. American College of Obstetricians and Gynecologists. *ACOG Practice Bulletin No. 227: Fetal Growth Restriction.* *Obstet Gynecol.* 2021;137(2):e16-e28.
16. Mohite SS, Dadhania JL. A study of the efficacy of powdered Aamgarbha Basti in Upavishtaka - Intrauterine Growth Restriction. *Afr J Biomed Res.* 2024;27(4s):6889-902.