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**CLINICAL EVALUATION OF SHARIRIKA BHAVAS IN
GARBHAVASTHA (CHATURTA, PANCHAMA AND SHASTAMA MASA)
– AN OBSERVATIONAL PILOT STUDY**

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ABSTRACT

Background:

Second trimester of Pregnancy is the most important phase for the development of both the pregnant mother and the foetus. Improper development during this period can lead to adverse outcomes of pregnancy.

Objectives:

Clinical evaluation of the sharirikabhavas (developmental changes) in Garbhini during the Chaturtha, Panchama and Shastama masa garbha vriddi as opined by Acharya charaka

Design:

This was a single pilot observational study that included 15 pregnant patients who were in the third month of their pregnancy. Selected patients were assessed for the parameters that are included in the study.

Results:

Parameters such as gurughatrata (heaviness of the body), body weight, karshata (mid arm and mid thigh circumference), bala (strength) and varna (complexion) showed significant changes during the observation period of 12th, 16th, 20th and 24th week of garbhavastha both according to Modern and Ayurvedic evaluation.

Conclusion:

This study showed that the Sharirika bhavas of Garbhini during the Chaturtha, panchama and Shastama masa Garbhavruddhi explained by Acharya Charaka is found to be similar to that explained in the Modern science and this shows that the Ayurveda, 5000yrs old science was updated with the knowledge of these above developmental changes of Chaturtha, panchama and Shastama masa.

Keywords: Sharirika bhavas, Garbhavastha, Masa, Chaturta, Panchama, Shastama avastha

INTRODUCTION

Pregnancy is defined as a period of transition which involves both physical and the emotional changes. [1] Due to the high prevalence of overweight and obesity in women of childbearing age most of the women have gained excessive weight in pregnancy according to the recent studies leading to the consequences to both the offspring and the mother.

Most of the mothers are experiencing gestational diabetes and pregnancy induced hypertension are at increased risk of cesarean delivery due to the excessive gestational weight gain. Simultaneously, even the offspring are at risk of impaired fetal growth, high birth weight, preterm birth etc and also cardiovascular disease etc complications by postpartum mothers adjacently. [2]

Significant physiological and anatomical changes are experienced by the pregnant mother during pregnancy in the process of accommodating and nurturing the developing foetus. This change commences immediately after the conception and affects every organ and the systems in the body of the pregnant women. [3] In case of normal and an uncomplicated pregnancy and in most of the pregnant women, these changes resolve with minimal effects after pregnancy. It becomes very important to understand the normal physiological changes of the pregnancy as this provides us the knowledge to differentiate abnormal adaptations. [4]

Changes during the pregnancy is understood in terms of gestational weight that includes both the maternal and fetal fat mass and fat-free mass with amniotic fluid and the

placenta. According to the Institute of Medicine, gestational weight gain guidelines by pre pregnancy body mass index aims optimization of maternal, fetal and infant health outcomes and to achieve a healthy body weight before pregnancy. [2]

Ayurveda is an ancient medical science, now considered as a traditional medicine or the complementary medicine by World Health Organisation and it is a science of life according to Ayurvedists. As per this science, the life begins with Garbha Utpatti that commences from the samagama of Shukra Shonita and brings about in Masanumasika garbha vrudhi and at the end of 9th month, this Garbh witnesses this world by a process called as Prasava or the labour. During this period of pregnancy, the garbhavrudhi occurs inside the mother's womb with the development of various Anga-Pratyangas or the body parts according to that particular masa. [5]

In Ayurveda, we can find the systematic description of foetal development described under Garbha Shareera that comprises the precise description of Garbha vrudhi and the vikas krama even without the Modern imaging techniques like sonography etc. during those times. Various Granthas have opined differently regarding the Garbha utpatti and Garbha vrudhi and has also

explained in detail about the Garbhini lakshanas that are helpful in the diagnosis of early pregnancy. Acharya Charaka, one among the Brihatrayee has mentioned the signs observed in Garbhini with progression of pregnancy. In the context of Masanu Masika Garbha lakshanas, most of the Acharyas have described only on Garbha lakshanas, whereas Charakacharya has emphasized both on Garbha and Garbhini.

Ayurveda Acharyas have described about Garbha very concisely. For in depth knowledge of this, research, extensive studies and in detail discussion is essential to understand ancient concept of Garbha vikas. Ayurvedic concept with modern parameters will aid us to obtain the knowledge of the same. During the fourth month of pregnancy, Garbha will get sthiratva and because of this Garbhini feels heaviness, while in 5th month there will be Mamsa Shonitha Upachaya in garbha and Mamsashonitha Apachaya of Garbhini, which leads to Karshyatha in Garbhini. Likewise in the 6th month there will be Bala varna hani of Garbhini due to Bala, Varna upachaya in garbha. Thus in these periods there will be changes in the Garbhini too, which needs a deep keen observation for the interpretation of classics. Hence, in this study, an attempt was made to study the sharirika bhavas of the 4th, 5th and

6th month of garbhavastha in Pregnant women in comparison with and modern concepts of pregnancy.

MATERIALS AND METHODS

Source of Data:

15 Pregnant women who were in the third month of pregnancy aged between 18 to 35yrs and fulfilling the eligible criteria were selected from the OPD and IPD of Prasuti tantra and Striroga Department of S.V.M. Ayurvedic Hospital, Ilkal

Design:

This was a single pilot observational study that included 15 pregnant women who were in the third month of their pregnancy. Selected patients were assessed for the parameters that are included in the study. A detailed case history, signs and symptoms and examination were done and recorded in the special proforma. Observations were made at the 12th week, 16th week, 20th week and the 24th week of their pregnancy.

Inclusion Criteria:

Pregnant women aged between 18 to 35yrs and who were in their third month of pregnancy, either primigravida or multigravidas were included for the study.

Exclusion Criteria:

Pregnant women with complications such as Oligohydraminos, Polyhydraminos, Multiple

pregnancy, P/v bleeding, Pre-eclampsia, Eclampsia, Placenta praevia, Abruption placenta, Co-existing fibroids, known cases of Anaemia, Hyper emesis gravidurum were excluded from the study. And those with the systemic diseases such as Hypertension, Cardiac diseases, Diabetes mellitus, HIV, Bronchial Asthma, Hepatitis B etc were also excluded.

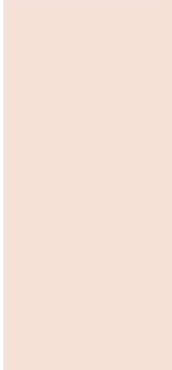





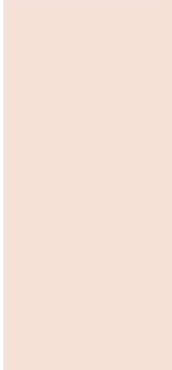





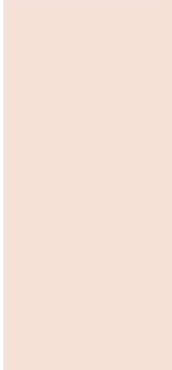





Observation period:

I st Observation	12 th week
II nd Observation	16 th week
III rd Observation	20 th week
IV th Observation	24 th week

Outcome measures:

1. Gurugatrata (Heaviness of the body- **Psychological feeling by questionnaire**)
2. Gurugatrata (Heaviness of the body- Body weight)
3. Karshata (Anthropometric methods) - Mid-arm circumference
4. Karshata (Anthropometric methods) - Mid thigh circumference
5. Bala (Strength)
6. Varna (Fitzpatrick complexion scale)

Table 1: Grading of the Parameters

1.	Gurugatrata (Heaviness of the body) – Psychological feeling of pregnant women by questionnaire)	Grading												
	No heaviness	0												
	Not affecting her daily work	1												
	Affecting her daily work	2												
	Decreasing her activities	3												
2.	Gurugatrata (Heaviness of the body)-Body weight	(In kgs)												
	12 th week													
	16 th week													
3.	Karshata (Anthropometric methods) - Mid-arm circumference	(In cms)												
	16 th week													
	20 th week													
4.	Karshata (Anthropometric methods) - Mid thigh circumference	(In cms)												
	16 th week													
	20 th week													
5.	Bala (Strength) - Psychological feeling of pregnant women by questionnaire)	Grading												
	No tiredness	0												
	Feeling of tiredness on heavy work	1												
	Feeling of tiredness on moderate work	2												
	Feeling of tiredness on mild work	3												
	Feeling of tiredness in sedentary state	4												
6.	Varna (Fitzpatrick complexion scale)													
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ETHICAL CLEARANCE: The study was approved by the institutional ethical committee.

DATA EXTRACTION AND STATISTICAL ANALYSIS: The data obtained was recorded, tabulated and statistically analyzed using appropriate statistical methods.

RESULTS

The present study was conducted on 15 Pregnant women who were in the third month of pregnancy aged between 18 to 35yrs and fulfilling the eligible criteria were selected from the OPD and IPD of Prasuti tantra and Striroga Department of S.V.M. Ayurvedic Hospital, Ilkal. Selected pregnant

women were assessed for the parameters that are included in the study. A detailed case history, signs and symptoms and examination were done and recorded in the special proforma. Observations were made at the 12th week, 16th week, 20th week and the 24th

week of their pregnancy and subjected to statistical analysis.

In the present study, maximum numbers of the pregnant women were in the age group of 18-28yrs, most of them were graduates and home makers and Hindus and with mixed diet.

Table 2: Demographic data

Age	18-28yrs	9
	28-35yrs	6
Education	Below 10th Std	3
	PUC	2
	Graduate	7
Occupation	Post graduate	3
	Home makers	7
	Labourers	2
Religion	Office worker	6
	Hindus	8
	Christians	2
Diet	Muslims	5
	Veg	6
	Mixed	9

Table 3: Overall improvement

	Marked changes	Moderate changes	Mild changes	No changes
Gurugatrata	15	-	-	-
Karshata	-	-	-	15
Bala hani	7	3	3	2
Varna hani	-	-	-	15

DISCUSSION

A pregnant woman undergoes a wide array of physical and emotional changes during pregnancy in order to nurture the baby in the womb and to produce milk to breastfeed a baby after birth. These changes act differently in the pregnant women than the one in general population and often alter woman's body systems and behaviors. [6] These changes in the conceived woman are directed by the body's reproductive

hormones where, the food intake, energy expenditure, and body mass accumulations are regulated by the hormone leptin, alter lipid concentrations in women. [7]

During pregnancy, increase is found in the plasma volume, red cell mass, maternal blood volume, white cell count, platelet production and total body water. [6] Weight increases due to increased renal vasculature enlargement of kidneys, interstitial volume, and urinary dead space. Decrease in the

capacity of the bladder and increase in the frequency of urinary incontinence.[8] Changes occur in the maternal respiratory system during pregnancy to ensure adequate supply of oxygen to the developing fetus such as increase in tidal volume (30–40%), increase in inspiratory capacity (5–10%), increase in minute ventilation (30–50%), decrease in functional residual capacity (20%), decrease in expiratory reserve volume (20–30%), decrease in residual volume (20%) and a slight decrease in total lung capacity (5%), all of which may potentially affect airborne exposures. [8] Regarding the digestive system, increase in the progesterone levels during pregnancy is observed that results in a decrease in intestinal tone and motility. [6]

Gurugatrata:

This was assessed through both the heaviness of the body using a psychological feeling of pregnant women by questionnaire and the body weight. For normal-weight women, the recommended weight gain during pregnancy is between 25 and 35 pounds (11.5–16 kg), slightly higher in case of underweight women and slightly lower in obese and overweight [9] According to study of Bisai et al, on second trimester pregnancy weight, Mother's weight was recorded at 14–18 weeks of pregnancy and found that if the

maternal weight is increased in the second trimester that helps in delivering the baby of normal weight. Proper assessment and maintenance of weight of the pregnant women in the second trimester can lead to the prevention of low birth weight baby.[10] the same was introduced by our acharyas Charaka and Kasyapa while explaining the concept of masanumasika Garbha vridhi – in the fourth month the firmness of foetus will lead to Gurugatrata (Heaviness of the body) of Pregnant lady

Karshata

Mid –arm circumference

Anthropometric measurements are used to predict adverse outcomes in pregnancy and they are body mass index, weight and mid thigh measurement etc where, mid-upper arm circumference is used as markers of skin fold thickness, reflecting total body fat in pregnant women. Assessment of this helps to assess obesity or the weight loss and can help plan and prevent the potential adverse outcomes. Measuring the mid arm circumference in pregnancy eliminates the need for sophisticated equipment and calculations and is a reliable proxy of pre-pregnancy body fat and nutrition. [11]

Mid – thigh circumference

According to the previous studies, Anthropometric measurement known as Mid-

thigh circumference (MTC) is an indicator of nutritional status and also a reliable predictor of mortality and could be a valuable tool to predict adverse pregnancy outcomes. MTC was shown to be stronger predictor of loss of subcutaneous fat or lipotrophy compared to other anthropometric tools and there was a linear relationship between MTC and birth weight outcome of the baby. [12]

A study conducted by the US Environmental Protection Agency (EPA) analyzed the body weight data for 1248 pregnant women from the 1999–2006 NHANES where, the mean body weight by trimester were 76 kg in the first trimester, 73 kg in the second trimester and 80 kg in the third trimester. [13]. This may witnesses description of Charakacharya and Kasyapa as most of the nutrition of the mother goes to the foetus to nourish its blood and muscles, the mother feels weak and looks emaciated.

Bala (Tiredness/Fatigue)

Fatigue is a common discomfort experienced during pregnancy and may contribute to severe labour pain and postpartum depression and various scales are used to assess the fatigue. [14] Feelings of fatigue and low energy are common problems during pregnancy. A prospective study showed that fatigue was the most common symptom

reported by pregnant women. [15] Charaka says, in this month the bala (strength) of the foetus improves, causes bala hani (Tiredness/Fatigue) in pregnant lady.

Varna (Skin Complexion)

90% women have significant and complex skin changes that may have great impact on the woman's life. These changes are mainly due to a number of complex endocrinological, immunological, metabolic, and vascular changes occurring in pregnancy that may influence the skin in various ways. There are many methods used to measure skin type, amongst which the Fitzpatrick Skin Type Classification is the most commonly used. [16] Regarding complexion Charaka elaborates -In comparison with other months, there is excessive increase of complexion of the foetus during the sixth month of gestation. Therefore, at that time the pregnant woman loses her complexion considerably.

In the present study, an effort has been made to study the sharirika bhavas or the developmental changes that has been described as per Acharya Charaka and analyze the parameters and the observations made by the research studies and that is explained in the Modern medicine. This study showed the significant changes with the parameters before and after the treatment

assessed both according to Modern and Ayurveda and signifies that the concept of Sharirika bhavas explained by Acharya Charaka is similar to Modern principles and this shows the in depth knowledge of the Ancient Ayurvedic science and its authenticity.

CONCLUSION

Second trimester of Pregnancy is the most important phase for the development of both the pregnant mother and the foetus. Improper development during this period can lead to adverse outcomes of pregnancy. Assessment of the parameters throughout the pregnancy in all the trimesters can help us in avoiding the complications of both the pregnant mother and the foetus. Garbha and the Garbhini holds the prime position in Ayurvedic science and hence all the Acharyas of Ayurveda has in detail described about the development of garbha and garbhini including and in different stages of garbhavastha. Present study focused to evaluate the Sharirika bhavasof Garbhini during the Chaturtha, panchama and Shastama masa of Garbhavruddhi explained by Acharya Charaka and according to Modern parameters. This study showed significant changes with the parameters assessed according to both Modern science and Ayurvedaand the Ayurvedic concepts is

found to be similar to the one explained in the Modern science which shows that the Ayurveda, 5000yrs old science was updated with the knowledge of these above developmental changes of Chaturtha, panchama and Shastama masa.

LIMITATION OF THE STUDY

In the above study we found significant changes in Gurugatrat and Bala hani, for Karshata and varna hani we need to observe with large scale of subjects

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