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## Research Article

### AYURVEDIC PERSPECTIVE OF IMPACT OF 'PRAKRITI' (BODY CONSTITUTION) ON PREGNANCY AND LABOUR

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#### ABSTRACT

An observational clinical study was conducted to develop an authentic approach regarding effect of “Dosha - Prakriti” (Humoral Constitution) on physiology of labour and to evaluate the physiological changes occurring during pregnancy on the basis of Prakriti (Constitution). A convenient sample of 50 pregnant females of age group 20-45 years, were selected after an informed written consent with  $\geq 34$  weeks of pregnancy. The study was conducted at OPD of Deptt. of Stri Roga evum Prasuti Tantra of Ayurvedic and Unani Tibbia College Hospital, Karol Bagh, New Delhi (Govt. of Delhi), India. 10 non-pregnant females (5 married and 5 unmarried) as control were enrolled in this study. The registered patients were categorized into 4 groups according to their Prakriti on basis of predominant dosha viz. Vataja, Pittaja, Kaphaja and Sama and 2 sub groups of Primigravida and Second/Multigravida. Routine investigations of the patients were conducted in the central laboratory of the hospital. The study revealed that in Vataja Prakriti females, progress of labour was good with strong labour pains in frequency and moderate labour process. Pittaja Prakriti Females exhibited more disturbed LFT during pregnancy and normal progress of labour during 1<sup>st</sup> stage of labour with moderate intensity and frequency of labour pains resulting in moderate labour process. Kaphaja Prakriti Females showed longest Period of Gestation (280-290 days) with more affected lipid profile during their pregnancy. At the time of labour, weak labour pains were observed in intensity as well as in frequency causing longer duration (22.27 hours) of 1<sup>st</sup> stage of labour causing difficult and prolonged labour was also noticed. In Sama Prakriti Females, good progress of labour was observed leading to moderate labour process.

**Keywords:** Prakriti, Prasuti, Apan Vayu, Body Constitution, Vataja, Pittaja, Kaphaja, Sama.

#### INTRODUCTION

Institutional delivery is the cornerstone of safe motherhood. “Safe Motherhood” is the aim of MCH (Maternal and Child Health Care Programme)<sup>1</sup>, which has been considered for this research study. Safe Motherhood<sup>2</sup> comprises of Safe Pregnancy, Safe Labour and finally Safe Puerperal Period. Ayurvedic Scholars have mentioned the factors for safe motherhood and have explained how the safe pregnancy leads to safe and easy labour process. Besides this they have given the unique concept of Prakriti<sup>3</sup>. It is well known that certain psychosomatic changes take place during pregnancy and labour. These are physiological processes and so due to different Prakriti it is but obvious that all females do not have the similar experiences during their pregnancy and labour. As per Ayurveda if we know the Prakriti of a particular female we may presume her entire pregnancy and parturition period at the beginning of pregnancy. But this would be possible only if scientifically the relation between Prakriti with Pregnancy and Labour could be proved. The present research study has been done to find out any such relationship of Prakriti with the Physiological Processes like Pregnancy and Labour. Moreover to prove whether labour process will be complicated or easier for a female of particular Prakriti. The aim of this study was to reveal the inter-relation of by-birth formed Prakriti<sup>4</sup> (genetically present) with the

major phenomenon of reproduction of human species i.e. Pregnancy and Labour and thereby helpful in the management of labour. The objective for this study was to promote the concept of Easy Labour (Sukha Prasav) in females of different “Prakriti”, without unnecessary medical intervention.

#### MATERIAL AND METHODS

A convenient sample size of 50 patients was selected after an informed written consent. The present study was carried out in the attached hospital of Ayurvedic and Unani Tibbia College, situated at Karol Bagh, New Delhi, India. A total of 50 patients with  $\geq 34$  weeks of pregnancy (primigravida, pregnant for the first time /multigravida, 2<sup>nd</sup> or above that pregnancy, between the ages of 20–35 years) were enrolled between May 2004 and January 2005, having Vataja, Pittaja, Kaphaja and Sama Prakriti. Prakriti analysis (Table 1) was done on basis of Proforma prepared from the features<sup>5</sup> mentioned in the Ayurvedic literature. Follow up was done weekly till their delivery at the hospital to observe the labour process and up to 3-4 days of postpartum. The comparative analysis of two groups was regarding routine blood investigations and biochemical tests for physiological difference was done using T-Test for equality of Means and Two-Sample Kolmogorov-Smirnov Test. The Prakriti and symptoms of pregnancy (rating scale<sup>0</sup>- absent, 1-mild, 2 moderate)

were correlated using Kruskal-Wallis Test and Chi-Square ( $\chi^2$ ) Test. The routine hematological and biochemical investigations (done at the time of 34<sup>+</sup> weeks of pregnancy and at the time of labour) for physiological variation in both the conditions were done using Paired T-Test. The influence of Prakriti on Labour (Type of labour, Labour Progress, Labour Pains, Duration of labour etc.) was evaluated by Kruskal-Wallis Test) and Chi-Square Test. The level of significance in all the above mentioned test-statistics was considered as 1 % (Highly significant), 5 % (Significant), 10 % (Just Significant) and above that Not significant.

## RESULTS

The observation of the selected sample of patients and statistical analysis of the data revealed following results:- The parameters assessed for the Labour Process (Table 4):

**Labour Progress** based on Bishop's score<sup>6</sup> (Table 2) depends on the Prakriti ( $p = .004$ )\* Duration of 1<sup>st</sup> stage of labour also varies with Prakriti ( $p = .003$ ) and results revealed longer duration in Kaphaja Prakriti females.

**Type of Labour**<sup>7</sup> is also influenced by the Prakriti ( $p = .012$ ). Type of Labour is meant for the procedure of labour process conducted (easy, moderate, difficult and

prolonged) on the basis of Power, Passage and Passenger concept playing their role in labour process.

**Labour pains** (Table 3) occur because of uterine contractions. The duration and intensity of Labour pains<sup>8,14</sup> vary in all females and they have relation with Prakriti of the female at the time of Labour ( $p = .082$ ). Vataja Prakriti females exhibited labour pains of high frequency and moderate intensity. Pittaja Prakriti females have high intensity and high frequency labour pains. While Kaphaja Prakriti females show labour pains of lower intensity and lower frequency.

## The hematological parameters and biochemical parameters Table 5 Assessment

Total Leukocyte Count ( $t = -3.962$  and  $p$ -value = .000), Alkaline Phosphatase ( $t = -7.048$  and  $p$ -value = .000), Serum Uric acid ( $t = -6.644$  and  $p$ -value = .000), Serum Cholesterol ( $t = -7.948$  and  $p$ -value = .000), LDL ( $t = -5.182$  and  $p$ -value = .000), Triglycerides ( $t = +7.967$  and  $p$ -value = .000), Mean blood pressure ( $t = -7.624$  and  $p$ -value = .000), Pulse Rate ( $t = -4.294$  and  $p$ -value = .000), Respiration Rate ( $t = -9.168$  and  $p$ -value = .000) and HDL ( $t = -2.225$  and  $p$ -value = .031) were having higher value during labour.

Table 1: Prakriti Assessment

Features	Vata	Pitta	Kapha
<b>Body Structure</b>	Tall, thin, poorly developed physique	Medium height, moderately developed physique	Short, stout, big, well-developed physique
<b>Weight</b>	Low, prominent bones	Moderate, good muscles	Heavy, tends towards Obesity
<b>Complexion</b>	Dull, brown, darkish	Red, flushed, shiny	White, pale, soft
<b>Skin</b>	Thin, dry, cold, cracked, prominent veins	Warm, moist, pink with moles, freckles, acne	Thick, white, moist, cold, soft, smooth
<b>Hair</b>	Scanty, coarse, dry (rough) brown, wavy	Less, fine, soft, reddish, early greying, baldness	Abundant, oily, thick, wavy, lusturous
<b>Eyes</b>	Small, dry, dull, unsteady	Medium, thin, red (inflamed easily), green, piercing	Wide, prominent, thick, white, Attractive
<b>Nose Lips</b>	Thin, small, dry, crooked Thin, small, darkish, dry, Unsteady	Medium Medium, soft, red	Thick, big, firm, oily Thick, large, oily, smooth, firm
<b>Teeth and Gums</b>	Thin, dry, small, rough, crooked, receding gums	Medium, soft, pink, gums bleed easily	Large, thick, soft, oily, smooth
<b>Shoulders</b>	Thin, small, flat	Medium	Broad, thick, firm
<b>Chest</b>	Thin, small, narrow, poorly developed	Medium	Broad, large, well or overly shaped
<b>Hands</b>	Small, thin, dry, cold, rough, fissured, unsteady (movements)	Medium, warm, reddish	Large, thick, oily, cool, firm
<b>Feet</b>	Small, thin, dry, rough, fissured Unsteady	Medium, soft, red	Large, thick, hard, firm
<b>Joints</b>	Small, dry, unsteady, cracking	Medium, soft, loose	Large, thick, well built
<b>Nails</b>	Small, thin, dry, rough, darkish	Medium, soft, reddish	Large, thick, smooth, white, firm, oily
<b>Urine</b>	Scanty, difficult, colorless	Profuse, yellow, red burning	Moderate, whitish, milky
<b>Faeces</b>	Scanty, dry, hard, difficult, painful, gas, tends towards constipation	Abundant, tends towards diarrhoea, burning sensation	Moderate, solid, mucous in stool
<b>Sweat</b>	Scanty, no smell	Profuse, hot, strong smell	Moderate, cold, pleasant smell
<b>Appetite</b>	Variable, erratic	Strong, sharp	Constant, low
<b>Voice</b>	Low, weak, hoarse	High pitch, sharp	Pleasant, deep, good tone
<b>Speech</b>	Quick, inconsistent, erratic, Talkative	Moderate, convincing, argumentative	Slow, definite, less talking
<b>Mental status</b>	Quick, adaptable	Intelligent, penetrating	Slow steady, dull
<b>Nature</b>	Indecisive	Critical, short tempered	Lazy, slow in activity
<b>Memory</b>	Poor, notices things easily but forgets	Sharp, clear	Slow to take notice but will not forget

<b>Emotional tendencies</b>	Fearful, anxious, nervous	Angry, Irritable, contencious	Calm, content, attached, very Emotional
<b>Faith</b>	Erratic, changeable, rebel	Determined, fanatic, leader	Constant, loyal, conservative
<b>Sleep</b>	Light, tends towards Insomnia	Moderate, may wakeup but fall asleep again	Heavy, difficulty in waking up
<b>Dreams</b>	Flying, moving, restless, clouds, sky, nightmares, black color	Colorful, passionate, conflict, red color, fire, lightning	Romantic, sentimental, white, water, lakes, few dreams
<b>Habits</b>	Likes moving, travelling, parks, plays, jokes, stories, dancing, artistic activities	Likes sports, politics, painting, hunting, fighting, adventures	Likes water, sailing, flowers, cosmetics, business
<b>Activity</b>	Quick, fast, unsteady, erratic, hyperactive	Medium, intolerant of heat, goal seeking	Sluggish, stately, steady but slow in starting
<b>Strength</b>	Low, poor endurance, starts and stops quickly	Medium, powerful in action, Energetic	Strong, good endurance but slow in starting
<b>Sexual nature</b>	Variable, erratic, deviant, strong desire but low energy, few Children	Moderate, pasionate, dominating,	Low but constant sexual desire good sexual energy, devoted, many children
<b>Sensitivity</b>	Fear of cold, wind, sensitive to dryness	Fear of heat, dislike of sun, fire	Fear of cold, damp, likes wind and sun
<b>Resistance to disease</b>	Poor, variable, weak immune System	Medium, prone to infections	Good, consistent, strong immune system
<b>Reaction to medications</b>	Quick, low dosage needed, unexpected side effects or nervous reactions	Medium, sensitive to drugs like aspirin	Slow, high dosage required, effects slow to manifest
<b>Pulse / Naadi</b>	Thready, rapid, irregular, weak like snake, crow	Wiry, bounding, moderate like a frog, leech	Deep, slow steady, rolling, slippery like a swan
<b>Interactions</b>	Gets friendly very fast, but quarrels easily	Limited friends, steady in relationships	Having less friends, relations are maintained for long
<b>Food</b>	Sweet, sour, salt, oily, hot	Sweet, astringent, bitter, cold	Bitter, astringent pungent, hot, rough, less
<b>Face expressions</b>	Blank face	Aggressive, angry	Smiling face

**Table 2: Bishop's Score for Labour Progress Assessment**

Factors	Score			
	0	1	2	3
Cervix	0	1	2	3
Dilatation (cm)	Closed	1-2	3-4	5 + / >4
Effacement (%)	0-30	40-50	60-70	80 + / >70
Consistency	Firm	Medium	Soft	-
Position	Posterior	Central	Anterior	-
Vertex Station	-3	-2	-1, 0	+1, +2

Total Score: 13; Favorable Score: 6-13; Unfavorable Score: 0-5

**Table 3: Assessment of Labour Pains**

	1 <sup>st</sup> Stage of Labour Duration/Interval	2 <sup>nd</sup> Stage of Labour Duration/Interval
Weak	10-15 s / 8-10 mt	20-25 s / 2-3 mt
Moderate	< 10-15 s / > 8-10 mt	< 20-25 s / > 2-3 mt
Strong	> 10-15 s / < 8 mt	> 20-25 s / < 2-3 mt

**Table 4: Labour Assessment with Prakriti as Variable**

	Chi-Square	d <sub>f</sub>	Asymp. Sig. (p-value)
Labour progress (bishop score)	13.367	3	.004
Labour pains	6.709	3	.082
Period of gestation	.403	3	.940
Duration - stage 1	14.210	3	.003
Duration - stage 2	1.718	3	.633
Duration - stage 3	3.475	3	.324
Type of labour	10.936	3	.012

Grouping Variable: Prakriti

Table 5: Hematological and Biochemical Parameters Assessment with Prakriti as Variable

S. No.	Parameters (during Pregnancy and at the time of Labour)	Paired differences Mean	T	D <sub>f</sub>	Sig. (2-tailed)
1.	TLC (pregnancy) - TLC (labour)	-928.6	-3.962	49	0.00000
2.	Alk. Phos. (pregnancy) - alk. Phos. (labour)	-83.274	-7.048	49	0.00000
3.	Uric. Acid (pregnancy) - uric. Acid (labour)	-0.706	-6.644	49	0.00000
4.	S. Cholesterol (pregnancy) - s. Cholesterol (labour)	-70	-7.948	49	0.00000
5.	LDL (pregnancy) - LDL (labour)	-14.94	-5.182	49	0.00000
6.	Triglycerides (pregnancy) - triglycerides (labour)	46.72	7.967	49	0.00000
7.	Mean blood pressure (pregnancy) - mean blood pressure (labour)	-9.66667	-7.624	49	0.00000
8.	Pulse rate (pregnancy) - pulse rate (labour)	-4.5	-4.294	49	0.00000
9.	Respiration rate (pregnancy) - respiration rate (labour)	-2.32	-9.168	49	0.00000
10.	HDL (pregnancy) - HDL (labour)	-1.26	-2.225	49	0.03100
11.	SGPT (pregnancy) - SGPT (labour)	-4.746	-1.599	49	0.11600
12.	SGOT (pregnancy) - SGOT (labour)	-5.34	-1.498	49	0.14100
13.	ESR (pregnancy) - ESR (labour)	2.98	1.392	49	0.17000
14.	S. Cret. (pregnancy) - S. Cret. (labour)	-1.44e-02	-0.878	49	0.38400
15.	Total protein (pregnancy) - total protein (labour)	8.60e-02	0.696	49	0.48900
16.	B. Urea (pregnancy) - b. Urea (labour)	-0.456	-0.676	49	0.50200
17.	Hb (pregnancy) - Hb (labour)	-0.108	-0.585	49	0.56100
18.	Albumin (pregnancy) - albumin (labour)	4.00e-02	0.5	49	0.61900
19.	S.bil. (pregnancy) - S.bil. (labour)	1.84e-02	0.418	49	0.67700
20.	Globulin (pregnancy) - globulin (labour)	1.40e-02	0.109	49	0.91400

## DISCUSSION

The longest period of gestation (280-290 days) was present in Kaphaja Prakriti. It means that 'Sthira guna'<sup>9</sup> or static quality of the Kapha may increase the stay of foetus in uterus. The LFT (Liver Function Test) parameters' level was found higher in Pittaja Prakriti during pregnancy as well as during labour. Most enzymes exhibit functions like that of Pitta, therefore Liver function were affected more in Pittaja Prakriti females. In fact serum Alkaline Phosphatase almost becomes double during pregnancy but much of the increase is attributable to heat stable placental alkaline phosphatase isoenzymes. There is further increase in its level till labour takes place and then decreases only after placenta is expelled. The level of Alkaline Phosphatase was found higher in Pittaja Prakriti females during pregnancy and labour. Because the main organ involved in the metabolism is 'yakrita' (liver) as per Ayurveda. It is also the functional site of Bhutagni<sup>10</sup> (many enzymes for digestion) at macro level. So, it is obvious that Pittaja Prakriti females may have higher level of Alkaline Phosphatase. Serum Cholesterol and LDL level was found higher in females of Kaphaja Prakriti during pregnancy and labour. As the Kaphaja Prakriti females consume more sweet and oily food. These substances are predominantly rich in high caloric energy providing substances. So, they enable the performance of work pertaining especially to muscle as required for bearing down efforts in response to uterine contractions during labour. Moreover the metabolism of sweet and oily food is mainly carbohydrates and fats respectively. Many of the parameters considered for the study were found to be influenced by the Prakriti of the patients. The 'Slow progress of labour' was observed in most of the Kaphaja Prakriti females. 'Moderate / Normal progress of labour' was observed in females of Pittaja Prakriti. 'Good progress of labour' was observed maximum in Sama Prakriti and thereafter in Vataja Prakriti. The action of Prasuti Maruta (a specific term given in Ayurveda for denoting Nervine action during labour) and vitiation of which may cause the obstructed or

delayed labour. So, because of the same property of the nervous action of Prasuti Maruta in Vataja Prakriti the labour was conducted normally and its progress was good throughout the process. But in Kaphaja Prakriti which is just opposite to vataja (as per Ayurveda); the progress of labour was found slow, which might be due to the opposite property. In Kaphaja Prakriti the descent of the foetus is slow. It is probably due to the static quality of kapha causing static activity and thus cervical dilatation is impaired. Initiation of Labour<sup>11</sup> occurs with the "X-Factor" which causes the foetal distress thus activation of foetal Hypothalamo-pituitary adrenal axis. This "X-Factor" or unknown factor can be called as "Garbhavasavairagyata" (Foetus's desire to stop staying in uterus (as told by Sushrut, an Ayurvedic Scholar) which influences the foetus to leave uterus. The probable cause of this feeling of foetus is the "Saadhak Pitta" (Hormone fulfilling the desire of a person) situated in foetal brain. The desire of the foetus to come out of the uterus causes the hypothalamus (Saadhak Pitta activation) to release Cortisol, which affects Placenta (Apara) to release local prostaglandins due to altered Oestrogen-Progesterone ratio. As per Haarita (a scholar of Ayurveda) "Naadi-Vibandha Mukti" (Separation from Cord) factor refers to the placental release of local Prostaglandins (P G E<sub>2</sub> and P G F<sub>2</sub> α). Simultaneously, naturally ["Swabhava" i.e. naturally and "Kala Parkarsh" i.e. completion of 9 months stay in uterus (as told by Sushrut, the Ayurvedic Scholar)] and "Garbhasampurnata" (as told by Bhela, an Ayurvedic Scholar); the mother's posterior pituitary secretes Oxytocin and parturition begins by the activation of myometrial contractions. Thus there is a stretch of foetal head on cervix and pelvic floor muscles due to myometrial contractions. This causes a +ve feedback arc (Ferguson's Reflex<sup>12</sup>) to secrete more Oxytocin in response to trigger mechanism add by tissue microscopic receptors (the contractile response is stimulated through α- receptors of post-ganglionic nerve fibre in and around cervix and lower part of uterus) and as a result more uterine contractions occur along with urge to bear down.

As per Ayurveda labour is said to be the function of Apan Vayu (Nervous activity controlling expulsion of urine, faeces, menstrual blood, semen and foetus etc.) and Prasuti-Maruta<sup>13</sup> may be considered as the Ferguson's Reflex for parturition. More of the effect of Prasuti-Maruta, more will be the +ve feed back mechanism (due to Ferguson's reflex) and thus stronger will be the uterine contractions. In this way the whole Labour process is completed.

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