

EFFICACY OF POTAKI MOOLA VAGINAL GEL ON PRASAVA FOR SUKHA PRASAVA

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ABSTRACT

The study of life, Ayurveda, has a wealth of information to impart to humanity in order for it to live a healthy life as intended by nature. But as time passed, there occurred a break from the natural rule. Women giving birth through caesarean section might be regarded as one of several lifestyle problems. Many medications have been described by *Ayurveda* in the interest of vaginal birth naturally. Most of the plants that are said to be oxytocics are used to start and keep labour going, help remove retained placentas, control postpartum haemorrhage and other things. The uterus's spontaneous activity is increased by the plant extracts, which results in more contractions. Typically, medicinal herbs are given to pregnant women at the conclusion of their pregnancy or as soon as labour symptoms start. The effectiveness of *Potaki Moola* Vaginal Gel on *Prasava* for *Sukha Prasava* is the main topic of this research.

KEYWORDS

Sukha Prasava, Potaki moola, Potaki moola vaginal Gel, Vaginal delivery

1. INTRODUCTION

‘Woman’ plays most important role to get offsprings. *Garbhadharna*, *Prasavavasta*, *Sutikavatsa*, are special *avasthas* (Phases) in the life of woman, during these *avasthas* many changes happen in her body, to maintain the health during those conditions, *Ayurveda* has explained special regiments. i.e. *Garbhini Paricharya* for special *Garbhini*.(1),(2).

Prasava is very difficult & life-threatening situation in the life of female, she can even die in this condition. (3). *Potaki mool* is having property of *Snigdha* & *Pichhil* (4) which gives softening to *apatyapatha* (vagina). The process of *Prasava* is under influence of *Apan Vayu* (5).Expulsion of Foetus is functions of *Apan Vayu* (6). When *Apan Vayu* is in normal status then only it causes expulsion of foetus ,due to different causes *Vata prakopa* (Vitiated Vata

Dosha) hampers the normal delivery of foetus, especially if *ruksha guna* of *vayu* increases, it causes dryness of vagina, due to excessive dryness of vagina , foetus cannot expelled out , Due to vitiated Vata Dosha , delivery does not takes place even after stipulated delivery time , *Garbhasang* (Obstruction) may occurs in such conditions immediate treatment should be given to enhance process of *Prasava* (7)

Therefore, in this situation, the drug '*Potaki*' would work. Due to *Snigdha guna*, it lubricates the vagina & soften the Perinial tissue,due to *Piscchil guna* *Apatyapath* becomes slippery,leads to easy descent of head of fetus, prevents *vata prakopa*, maintains *Anuloma gati* of *Aapan vayu*, Therefore we decided to work on *Sukhaprasavakaraka yoga* (Medicines usefull for Normal vaginal Delivery),mentioned in *Bhaisajya Ratnavali* as Application of *Potaki Moola kalka* processed with *Til Taila* (Sesame oil)or only *Potaki moola kalka* inside Vagina leads to *Sukhaprasava* (Easy or gentle parturition or delivery) (8)Instead of using *kalka* we prepared *Potaki Moola Vaginal Gel*.

2. MATERIAL AND METHODS

Two types of materials were used for present study.

1. Literary material,
2. Clinical material.

1. Literary material- Literary material has been compiled from various *Ayurvedic Samhitas*, their commentaries & recent critics on *Ayurveda*, various post graduate dissertation & Modern obstetric books.

2. Clinical material- It includes all the materials necessary for clinical trials.

1. Patients for Trial & Control group,
2. Drug- *Potaki moola vaginal gel*.
3. IUI Cannula

2.1 DRUG REVIEW

Drug used for *Sukhaprasava* is *Potaki* (*Basela Rubra*)

Part used – Roots (*Moola*)

Botanical name: *Basella alba*, Synonyms- *Basella rubra roxburgh*

Potaki belongs to *shaka varga*.

Table No.1: Scientific classification of *Potaki*

Scientific classification	
Kingdom –	plantae
(unranked –	Angiosperms)
(unranked –	Eudicots)
(unranked –	Core eudicots)
Order –	caryophyllales
Family –	Basellaceae
Genus –	Basella
Species –	alba



Fig.1 *Potaki* Plant

Properties – Stem & leaves are sweet, cooling emollient, laxative, appetizer, diuretic, demulcent, rubefacient, Mucilaginous when cooked. (9)

Table- No.2: Properties of *Potaki* -(4)

Dravyanam	Family	Lat. name	Rasa	Vipak	Virya	Guna
<i>Potaki</i>	Basellaceae	<i>Basella rubra</i>	<i>Madhur</i>	<i>Madhur</i>	<i>Shita</i>	<i>Snigdha, pitchhil, kafavardhak vata-pittanut.</i>

There are two main species of Malabar spinach -1) *Basella alba* which has green stems & thick fleshy leaves. 2) *Basella rubra* which has red stem.

***Potaki* Moola (Roots)-**

Material used '*Potaki* (*Basella alba*) Moola (Roots).

This material *Potaki* was identified by the experts. Identification & authentication of drug was done at Agharkar Research Institute, Pune. '*Potaki* herb' was collected from farm from Ahmednagar district. I planted *Potaki* herb in the garden of my home & taken care of those plants for 6 months to grow them. The roots of *Potaki* were collected & washed with water. The standardization of Raw Material i.e., *Potaki* root was done in standard laboratory, at Center of Post graduate studies & Research in Ayurved of Tilak Ayurved Mahavidyalaya,

Pune as per API guidelines. Standardization of *Potaki moola* was done on following parameters -Foreign matter- Nil, Ash value analysis, Total Ash- 2%, Acid insoluble ash- 0.33%, Alcohol soluble extract-5.33%, Water soluble extract- 1.33%. Thin Layer Chromatography of *Potaki Moola* (Roots) was performed and 1 spot was observed. Solvent system: ethyl acetate: diethyl ether :5:5, Total length travel by solvent :12.5cm. Observations – Colour – Yellow, Distance of spot from starting point in cm is 9, RF Value -0.72.

SOP OF *Potaki Moola* Vaginal GEL-

Instead of using *kalka* we prepared gel, as fresh *Potaki moola* cannot be available at any time when patient comes in labour, it was also risky to apply *kalka* inside vagina because of chance of infection(chorioamnionitis) because of duration of action of *kalka* is till the delivery of fetus, so we used vaginal Gel for the convenience of preparation and application. In the preparation of *Potaki Moola* Vaginal Gel instead of using *Til tail* we used distilled water (qs), as preparation of gel was not possible by using *Til tail* (Sesame oil).

2.3 POTAKI MOOLA VAGINAL GEL PREPARATION

Roots of *Potaki* were collected in adequate quantity & thoroughly washed with running water, all mud was removed.



Fig.2 *Potaki Moola* (roots)

Preparation of *Potaki Moola* tincture - Roots of *Potaki* were cut into small pieces & then fine paste of these roots was prepared.



Fig.No. 3 *Potaki* Roots cut in to small pieces

Swarasa (Juice) from that fine paste was collected. To prepare mother tincture Ethyl alcohol 91% (1:9 praportion) was used. 500 ml of *Potaki Swarasa* (Juice) taken into large glass bottle & 4500ml of Ethyl alcohol 91% was added to this. Bottle was tightly closed & then stored in cool & dry place for next 24 hours. The prepared solution is mother tincture of *Potaki*. *Potaki moola* vaginal gel was manufactured at *Ayurvedic* pharmacy, Ahmednagar, Maharashtra. *Potaki* tincture 20% was incorporated in carbopol. (1:4) *Potaki Moola* vaginal gel was presented as tube containing 15 gms of *Potaki moola* vaginal gel.



Fig. 4 -*Potaki Moola* vaginal gel Tubes



Fig. 5 *Potaki Moola* vaginal gel

Storage: The tubes were stored at room temperature. Ethyl Alcohol is antimicrobial agent, hence itself acts as preservative, hence stability & shelf life is prolonged. Standardization of *Potaki Moola* vaginal gel was done at standard laboratory. Standardization of *Potaki Moola* vaginal gel was done on following parameters. Antimicrobial study, PH = 7.72, Viscosity, Appearance- Transparent white, Homogeneity –*Potaki* gel is homogenous.

2.4 CLINICAL STUDY

Clinical trial of *Potaki* gel was conducted in Tilak Ayurved Mahavidyalaya, Pune, Tarachand Hospital, in Gynae ward, on IPD basis. NOC for clinical trials was obtained from IEC. All the required accessories for vaginal Gel application were obtained & kept ready. The patients agreed for clinical trial were selected, & admitted to Gynae ward after onset of labour. The sample size was 60. Patients were selected at random basis, they were screened according to inclusion & exclusion criteria.

Inclusion Criteria - Primigravida patients with gestational age ≥ 37 weeks in active labour pain with cervical dilation ≤ 3 cm, with age group between 20 to 30 years of age, were selected irrespective of their education, social status, income & caste, Vx presentation of foetus.

Exclusion criteria- Cephalopelvic disproportion & contracted pelvis, Previous uterine & vaginal surgeries, Antepartum Haemorrhage -Placenta previa, Abruptio placenta, PIH (Pregnancy Induced Hypertension), Mal presentation, Foetal distress, HIV positive patient, Patient with sexually transmitted disease, Severe anaemia, Diabetes mellitus, Pregnancy with malignancy, Pregnancy with fibroid, Twin pregnancy.

A written & informed consent of the patient was taken. The selected patients were divided into two groups -Trial group-A and Control group-B.

Detail History taking & Physical examination was done & Antenatal records were reviewed. Gestational age & fetal maturity was evaluated, through obstetric examination was to determine period of gestation ≥ 37 wks, Onset of labour, Cervical dilatation ≤ 3 cm, Vertex presentation, Position of fetus. All the patients were subjected to the routine necessary Haematological & Urine laboratory investigations, if not done previously. Recent USG (Obstetrics) with Biophysical Profile, NST were carried out. Pelvic assessment was done & confirmed with senior personals available when the patient comes in labour.

Trial group A -Number of patients 30, In Trial group patients, *Potaki moola* vaginal gel was inserted inside vagina into posterior fornix with the help of IUI Cannula attached to nosal of tube of *Potaki* gel & then with the help of gloved right hand's Index & Middle finger gel was evenly applied around vaginal wall, when the patient was in active labour pain with cervical dilatation ≤ 3 cm. IUI Canula was used to push *Potaki* gel directly into vagina, to maintain sterility & to prevent spread of *Potaki* gel outside vulva as it avoids unnecessary loss of *Potaki* gel. *Potaki moola* vaginal gel was applied at the time of onset of labour, repeated after 1st 3 hours of gel application, if required repeated after next 3hrs. Each time 5 gms of gel was applied.

Control group B-Number of patients 30, Control group patients were assessed under same criteria these patients were treated with Standard Intranatal treatment.

Standard Intanatal treatment given- patient was admitted in ward at onset of labour, Soap water Enema (400ml) was given to keep bowel empty & to facilitate labour. Soap water enema was given to Trial group patients also. Progress of labour Maternal & Fetal conditions were monitoured. Progress of labour was monitoured by partogram, when the curve crosses alert line then necessary action was carried out. Progress of labour was monitored by Partogram. Patients were followed from onset of labour to 1 hour after delivery.



Fig. 6. Instruments used for *Potaki Moola* Vaginal Gel Application

Group-A Trial Group

Table No.3: Group- A Trial Group Number of patients 30

At onset of labour pain	Soap water enema(400ml)
Time of potaki moola vaginal Gel application	When the patient is in active stage of labour, cervical dilatation \leq 3cm, repeated after 3hrs for 3 times.
Route of administration	Per Vaginal
Duration of Action of vaginal Gel.	Till delivery
Dose of Potaki gel	5gm, at each application,If required Inj.Pitocin drip.

Group – B Control Group

Number of patients 30

These patients were treated with standard Intranatal treatment.

Table No.4: Group- B Control Group

At onset of labour pain	Soap water enema(400ml)
Progress of labour, maternal & fetal conditions were monitoured.	If required Inj.Pitocin drip.

Criteria for Assessment :- Detailed case papers were prepared incorporating all signs & symptoms of Prasavotsuka(Patient in Active labour pain). Assessment totally based on clinical observation.

1. Uterine contractions

Table No. 5: Gradings of Uterine Contractions-

INTENSITY	Frequency,Duration	Grades
Mild	1-2 contractions/10 minutes,for 20 seconds.	+
Mild to Moderate	2-4 contractions/10 minutes,for 20-40seconds.	++
Moderate	4+ contractions/10 minutes,for 40-60 seconds.	+++

2. Cervical dilatation, Cervical effacement, Descent of Head-(Bishop’s Score) (10)

Table.No. 6: Bishop’s Score

Parameters	Grades			
	0	1	2	3
Cervical dilatation (cm)	Closed	1-2	3-4	5+
Effacement (%)	0-30%	40-50%	60-70%	≥ 80%
Head (Station)	-3	-2	-1, 0	+1,+2,+3

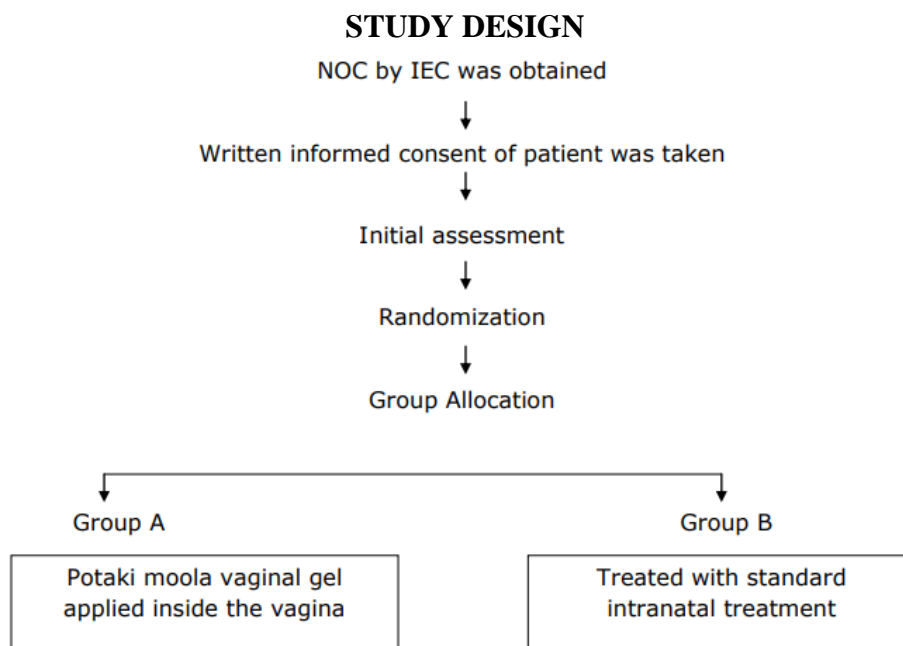
3. LABOUR PROGRESS ACCORDING TO PARTOGRAM,

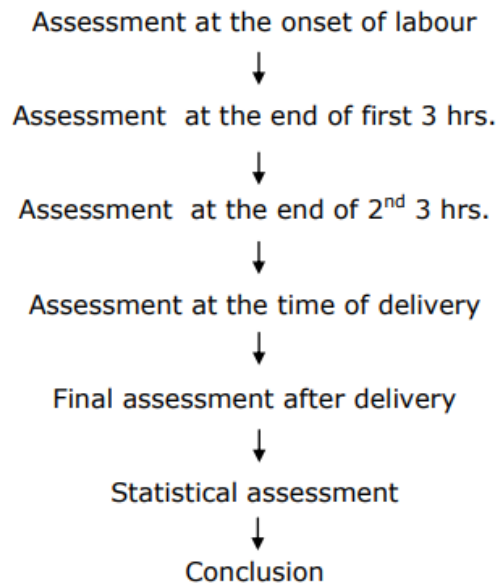
4. TOTAL DURATION OF LABOUR IN MINUTES,

5. MODE OF DELIVERY,

6. DRUG REQUIRED FOR AUGMENTATION OF LABOUR

Investigation of patients under study :-Haemogram, BSL -Fasting ,Post prandial,HIV, VDRL,HBsAg, Blood group ,Urine (R)(M), USG (Obstetric),Biophysical profile,NST.





OBSERVATION & RESULTS

Total 60 patients were registered for Research work. *Potaki* gel was applied inside vagina in 30 patients & 30 patients were given standard Intranatal treatment.

All these 60 patients were studied & their observations were recorded & necessary tables, graphs & charts were prepared.

STATISTICAL ANALYSIS-

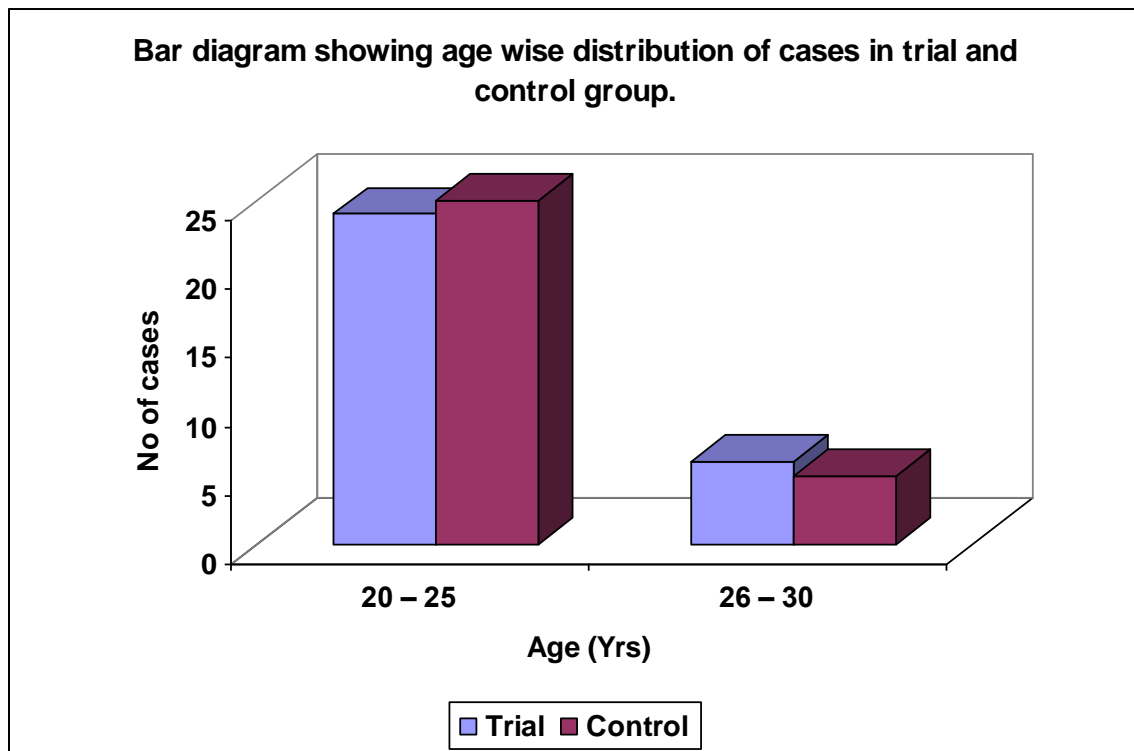
All observed data collected after the assessment was subjected to the statistical analysis. This was drawn by making the observations with subjective & objective parameters. Chi square test was applied to qualitative data & Z test was applied to quantitative data data & Proportion test was applied.

Table 7: Age wise distribution of cases in trial and control group

Age (Yrs)	Trial	Control	Total
20 – 25	24 (40)	25 (41.67)	49 (81.67)
26 – 30	6 (10)	5 (8.33)	11 (18.33)
Total	30 (50)	30 (50)	60 (100)

Chi-square = 0.11, P>0.05

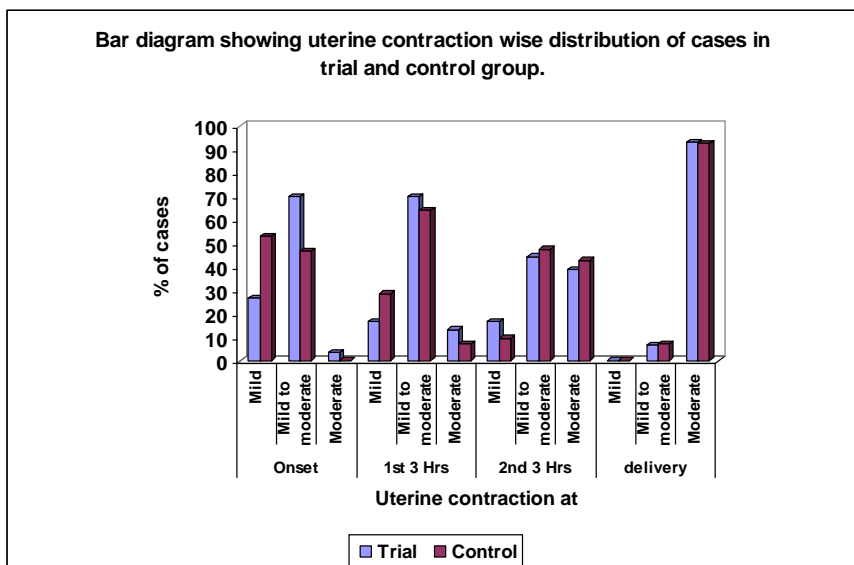
In this study inclusion criteria of age is 20 to 30 yrs. So, age wise distribution of 60 patients was done in 2groups; 20-25,26-30.



There is no significant difference of age between Trial & control group. Average age between these two groups is 22 yrs.

Table 8: Uterine contraction wise distribution of cases in trial and control group

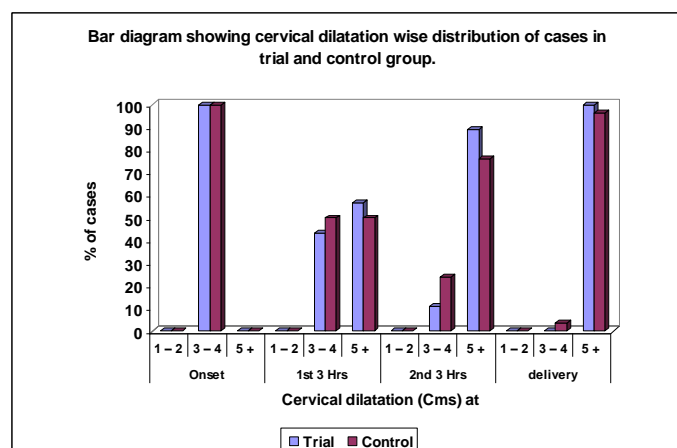
Uterine contraction at		n	Trial (%)	n	Control (%)	Chi-square	P Value
Onset	Mild	30	8 (26.67)	30	16 (53.33)	3.31	>0.05
	Mild to moderate		21 (70)		14 (46.67)		
	Moderate		1 (3.33)		0		
1 st 3 Hrs	Mild	30	5 (16.67)	28	8 (28.57)	1.52	>0.05
	Mild to moderate		21 (70)		18 (64.29)		
	Moderate		4 (13.33)		2 (7.14)		
2 nd 3 Hrs	Mild	18	3 (16.67)	21	2 (9.52)	0.44	>0.05
	Mild to moderate		8 (44.44)		10 (47.62)		
	Moderate		7 (38.89)		9 (42.86)		
delivery	Mild	30	0	28	0	0.01	>0.05
	Mild to moderate		2 (6.67)		2 (7.14)		
	Moderate		28 (93.33)		26 (92.86)		



There is no significant difference of Uterine contractions in Trial & Control group, at onset, 1st 3hrs of labour, 2nd 3 hrs of labour & at Delivery.

Table 9: Comparison of cervical dilatation in trial and control group

Cervical dilatation (cm) at		N	Trial (%)	n	Control (%)	Chi-square	P Value
Onset	1 – 2	30	0	30	0	-	-
	3 – 4		30 (100)		30 (100)		
	5 +		0		0		
1 st 3 Hrs	1 – 2	30	0	28	0	0.26	>0.05
	3 – 4		13 (43.33)		14 (50)		
	5 +		17 (56.67)		14 (50)		
2 nd 3 Hrs	1 – 2	18	0	21	0	1.06	>0.05
	3 – 4		2 (11.11)		5 (23.81)		
	5 +		16 (88.89)		16 (76.19)		
Delivery	1 – 2	30	0	28	0	1.09	>0.05
	3 – 4		0		1 (3.57)		
	5 +		30 (100)		27 (96.43)		

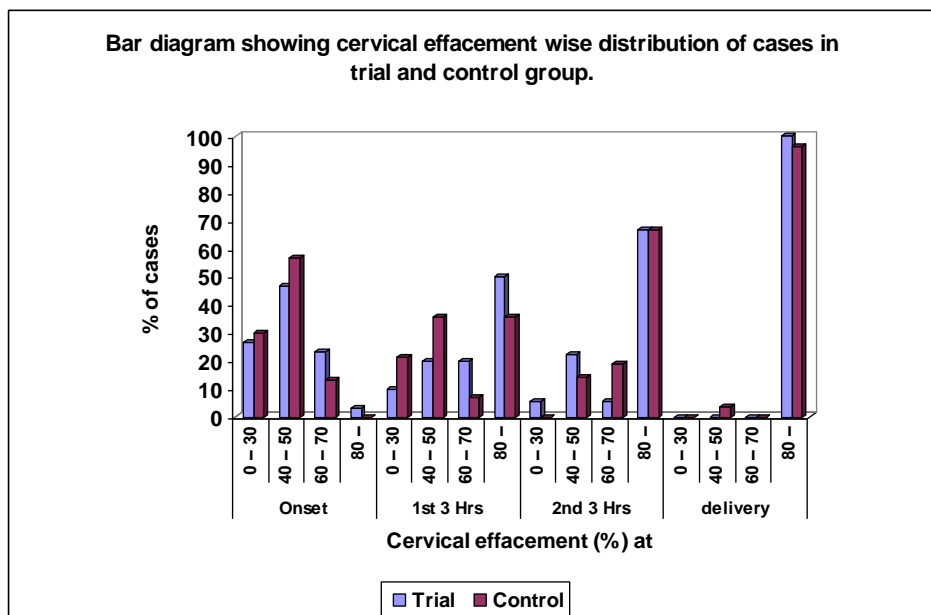


There is no significant difference of cervical dilatation in Trial & Control group, at onset, 1st 3 hrs of labour, 2nd 3 hrs of labour & at Delivery. At onset cervical dilatation is same in both groups.

Trial group is having more cervical dilatation than Control group at 1st 3 hrs of labour, 2nd 3 hrs of labour & at Delivery, but not statistically significant

Table 10: Comparison of cervical effacement in trial and control group

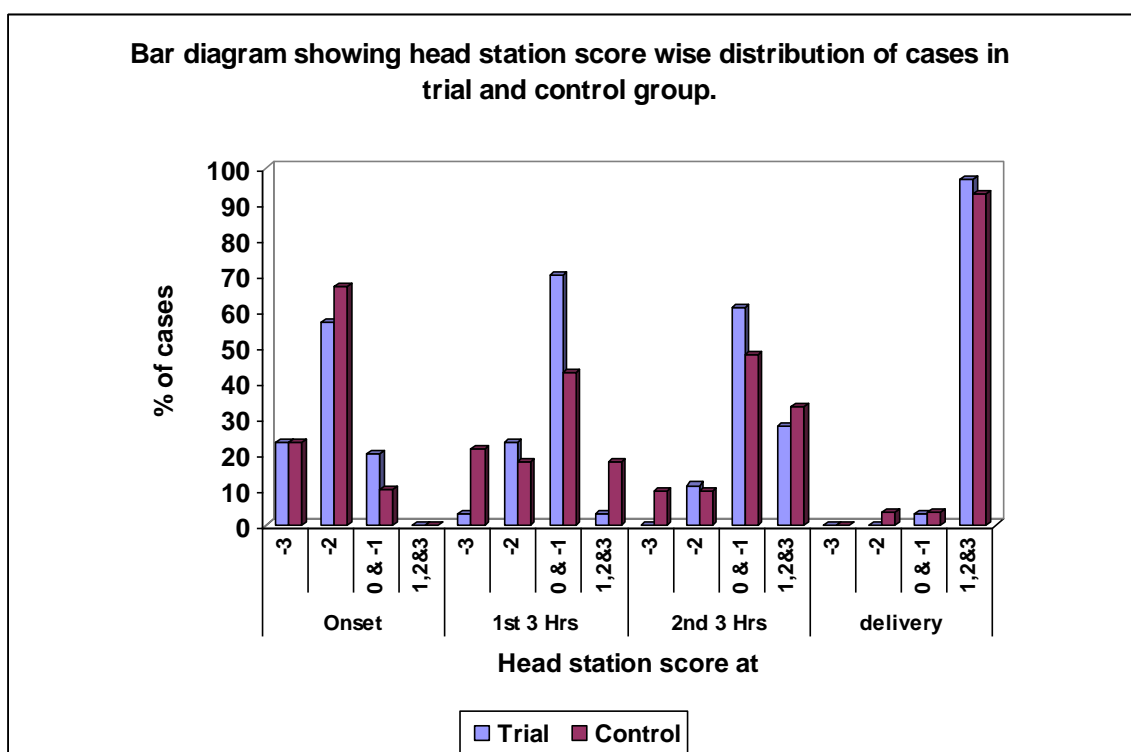
Cervical effacement (%) at		n	Trial (%)	n	Control (%)	Chi-square	P Value
Onset	0 – 30	30	8 (26.67)	30	9 (30)	2.17	>0.05
	40 – 50		14 (46.67)		17 (56.67)		
	60 – 70		7 (23.33)		4 (13.33)		
	80 – 100		1 (3.33)		0		
1 st 3 Hrs	0 – 30	30	3 (10)	28	6	4.94	>0.05
	40 – 50		6 (20)		10		
	60 – 70		6 (20)		2		
	80 – 100		15 (50)		10		
2 nd 3 Hrs	0 – 30	18	1	21	0	2.88	>0.05
	40 – 50		4		3		
	60 – 70		1		4		
	80 – 100		12		14		
Delivery	0 – 30	30	0	28	0		>0.05
	40 – 50		0		1		
	60 – 70		0		0		
	80 – 100		30 (100)		27		



There is no significant difference of Cervical effacement in Trial & Control group, at onset of labour, 1st 3 hrs of labour, 2nd 3hrs of labour & at Delivery. Trial group is having more cervical effacement than Control group at 1st3 hrs of labour & at Delivery, but not statistically significant

Table 11: Comparison of head station score in trial and control group

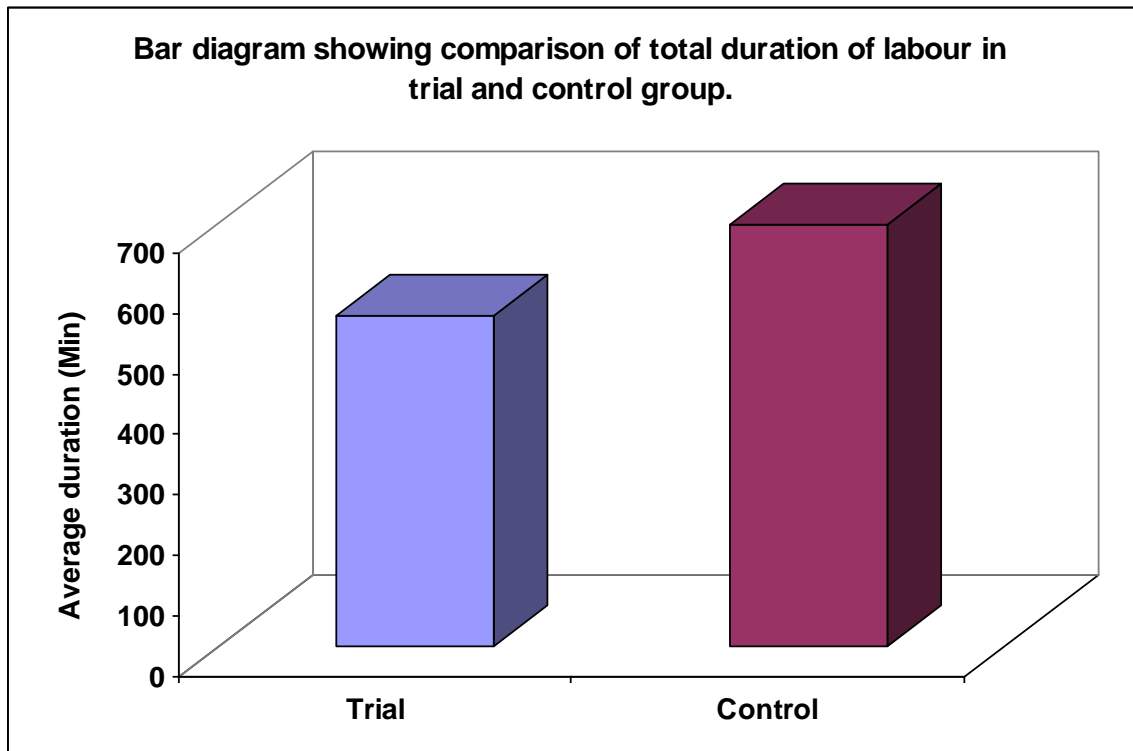
Head station score at		N	Trial (%)	n	Control (%)	Chi-square	P Value
Onset	-3	30	7 (23.33)	30	7 (23.33)	1.24	>0.05
	-2		17 (56.67)		20 (66.67)		
	-1 & 0		6 (20)		3 (10)		
	1,2 & 3		0		0		
1 st 3 Hrs	-3	30	3 (3.33)	28	6 (21.43)	8.97	<0.05
	-2		7 (23.33)		5 (17.86)		
	-1 & 0		21 (70)		12 (42.86)		
	1,2 & 3		1 (3.33)		5 (17.86)		
2 nd 3 Hrs	-3	18	0	21	2 (9.52)	2.16	>0.05
	-2		2 (11.11)		2 (9.52)		
	-1 & 0		11 (61.11)		10 (47.62)		
	1,2 & 3		5 (27.78)		7 (33.33)		
Delivery	-3	30	0	28	0	1.10	>0.05
	-2		0		1 (3.57)		
	-1 & 0		1 (3.33)		1 (3.57)		
	1,2 & 3		29 (96.67)		26 (92.86)		



At onset Head station was same in Trial & Control group. At 1st 3 hrs descent of head in Trial group at 1st 3 hrs of labour was significantly more than the Control group. At 2nd 3 hrs & at delivery descent of Head was more, but not statistically significant.

Table 12: Comparison of total duration of labour in Minutes Trial and Control group

Labour	Trial	Control	Z Value	P Value
	Mean ± SD (n=30)	Mean ± SD (n=30)		
Duration (Min)	547 ± 247	696 ± 304	2.09	<0.05



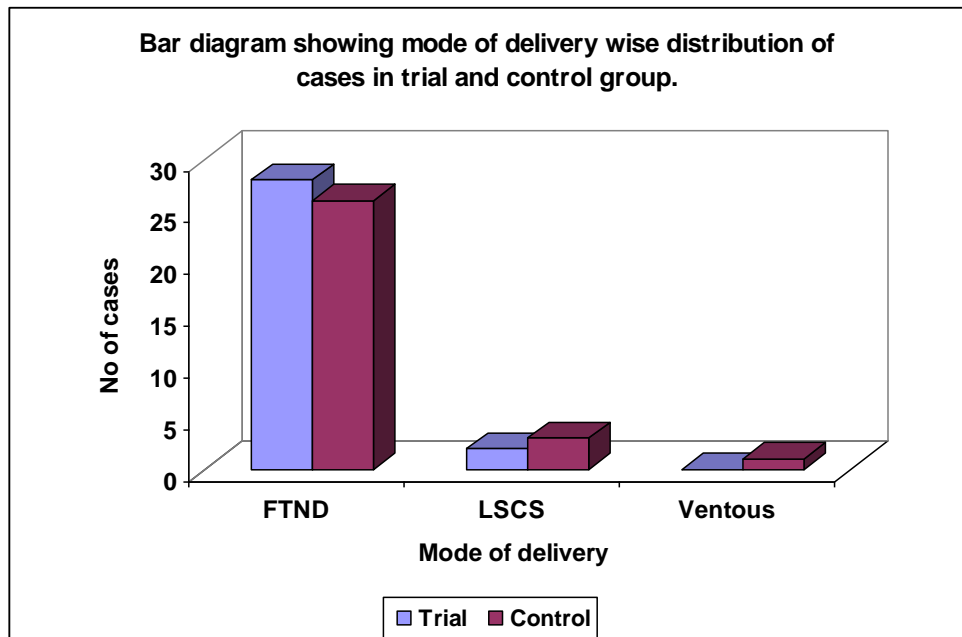
Total duration of labour was significantly less in Trial group than Control group.

Table 13: Mode of delivery wise distribution of cases in trial and control group

Mode of delivery	Trial %	Control%	Total
FTND	28 (46.66)	26 (43.33)	54 (90)
LSCS	2 (3.33)	3 (5)	5 (8.33)
Ventous	0(0)	1 (1.67)	1 (1.67)
Total	30 (50)	30 (50)	60 (100)

Chi-square = 1.27, P>0.05

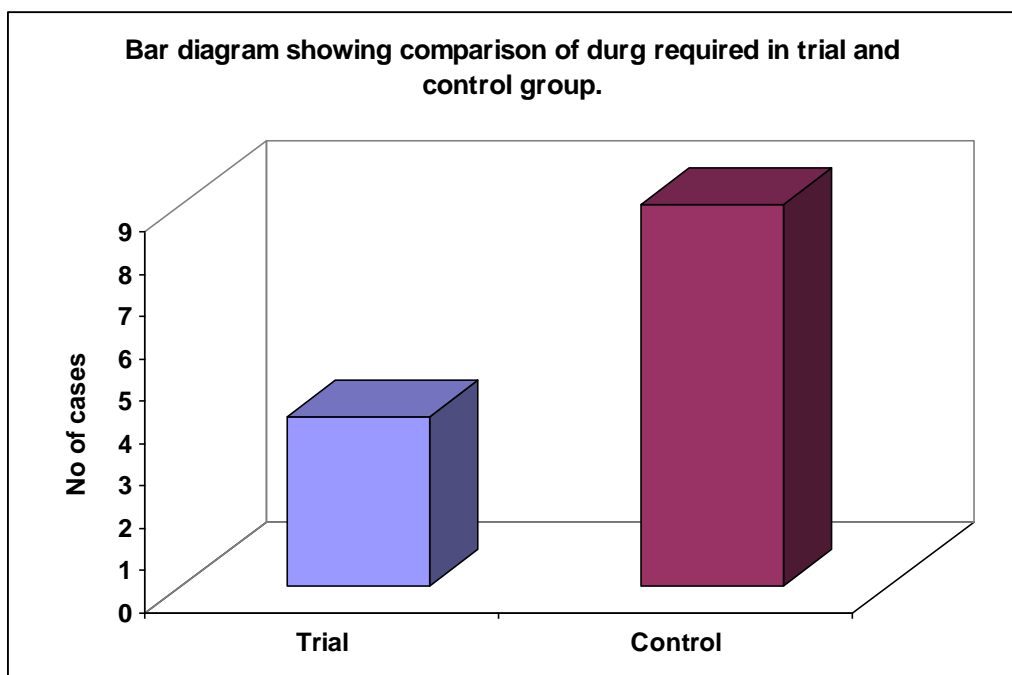
P=0.7353



In Trial group 28 (93.33%) patients were delivered normally per vaginally & 2(6.67%) patients required Caesarian section. In Control group 26(86.67%) patients were delivered normally per vaginally,3(10%) patients required Caesarian section & 1(3.33%) patient required Ventous delivery.

Table 14: Comparison of drug required for Augmentation in Trial and Control group

Parameter	Trial (n=30)	Control (n=30)	Z Value	P Value
Drug require	4 (13.33)	9 (30)	1.6	>0.05



Drug required (Inj. Pitocin drip) for Control group was 2 times more than Trial group, but not statistically significant.

DISCUSSION-

Discussion on preparation of *Potaki moola* vaginal Gel-*Sukhaprasavkarak yoga* mentioned in *Bhaishyajya Ratnavali* is that *Potaki moola kalka* (Paste of *Potaki* Roots)processed in *Til tail* (Sesame oil) or only *Potaki moola kalka* (Paste of *Potaki* Roots)should be applied inside vagina for *Sukhaprasav*(8), Instead of using *kalka* we prepared gel , as fresh *Potaki moola* cannot be available at any time when patient comes in labour, it was also risky to apply *kalka* inside vagina because of chance of infection(chorioamnionitis) because of duration of action of *kalka* is till the delivery of fetus. It was practically difficult to maintain sterility while preparing *kalka* at every time, so we used *Potaki Moola* vaginal Gel for the convenience of preparation and application, by preparing gel there are no chances of infection, as sterility is maintained by the process of preparation of gel. Initially, *Potaki* gel was prepared by making decoction of *Potaki moola*. 1part of *Potaki moola*+8 times of water ,heated and ¼ Part of *Potaki* decoction prepared. Then Methyl paraben (Gel base) added to *Potaki* decoction.1part of *Potaki* decoction + 4 parts of Methyl paraben was used & gel was Prepared & Pilot study was done on 5 patients, but there was no any effect of *Potaki* gel on progress of labour .*Potaki* helps for *Sukhaprasava* by, it's *Snigdha* & *Picchil guna*, but due to preparation of *Potaki moola* decoction, there was loss of *Picchil* & *Snigdha guna* of *Potaki* & hence the gel was not effective, hence we decided to prepare gel again by different method. If mother tincture of drug is used to prepare gel, then basic properties of drug remain the same, so we prepared mother tincture of *Potaki moola*. Mother tincture of *Potaki moola* is incorporated with 20% Carbopol, (1:4 praportion) & gel was prepared, & presented as tube containing 15 gms of *Potaki* Gel. Then we started to apply gel inside vagina & observed data was recorded, by using this gel there was significant head descent in Trial group. In *Ayurvedic* literature so many *Sukhaprasavakararak yogas* are mentioned, but most of they are having *Ushana virya* ,*Katu vipak*, *Katu rasa*, *Tikshna guna*, but as *Potaki* is of *Shita virya*, it is safe for use of it inside vaginal mucosa.

Uterine contractions-

There is no significant difference of Uterine contractions in Trial & Control group, at onset,1st 3hrs of labour,2nd 3 hrs of labour,& at Delivery as *Gunas* of *Potaki* are *Madhur rasa*,*Madhur vipak*,*Shit virya* & it is *Snigdha* & *Picchil* because of these *gunas* *Potaki* is *Vatshamak* (Pacifying Vata Dosha) & *Kapha vridhikar*(Increases kapha Dosha)(4).It doesn't initiate or increases uterine contraction. It causes lubrication of *Apatyapatha* (Vagina) it becomes slippery, soft & wet because of *Picchil guna*(*Sliminess/ Sloppiness*) & hence facilitate easy descent of head of fetus.

CERVICAL DILATATION –

At the onset of labour cervical dilatation was same in Trial & Control group, Trial group was having more cervical dilatation than Control group at 1st 3hrs ,2nd 3hrs & at delivery, but not statistically significant. For smooth cervical dilatation, softening of cervix is essential, Local action of *Potaki moola* vaginal gel which is *Snigdha* & *Picchil* enhances softening of cervix.

Gunas of Potaki are Madhur rasa, Madhur vipak, Shit virya & it is Snigdha & Picchil, because of these gunas Potaki is Vatshamak, & Kapha vridhikar. (4) It doesn't initiate or increases uterine contraction. Uterine contractions & retractions are responsible for cervical dilatation, with each uterine contraction cervical canal opens up from above down & becomes short (11)

Trial & Control group both were having same cervical dilatation.

CERVICAL EFFACEMENT-

Trial group was having more cervical effacement than Control group after 1st 3 hrs of *Potaki* gel application & at time of delivery, but not statistically significant, as *Potaki* gel causes tissue oleation, gives strength to pelvic muscles, but does not induces uterine contraction, so it doesn't facilitate cervical effacement.

DESCENT OF HEAD-

At onset head station was same in Trial & Control group. Descent of head in Trial group was significantly more after 1st 3 hrs of *Potaki* gel application than the Control group, after 2nd 3hrs of gel application & at delivery descent was more but not statistically significant.

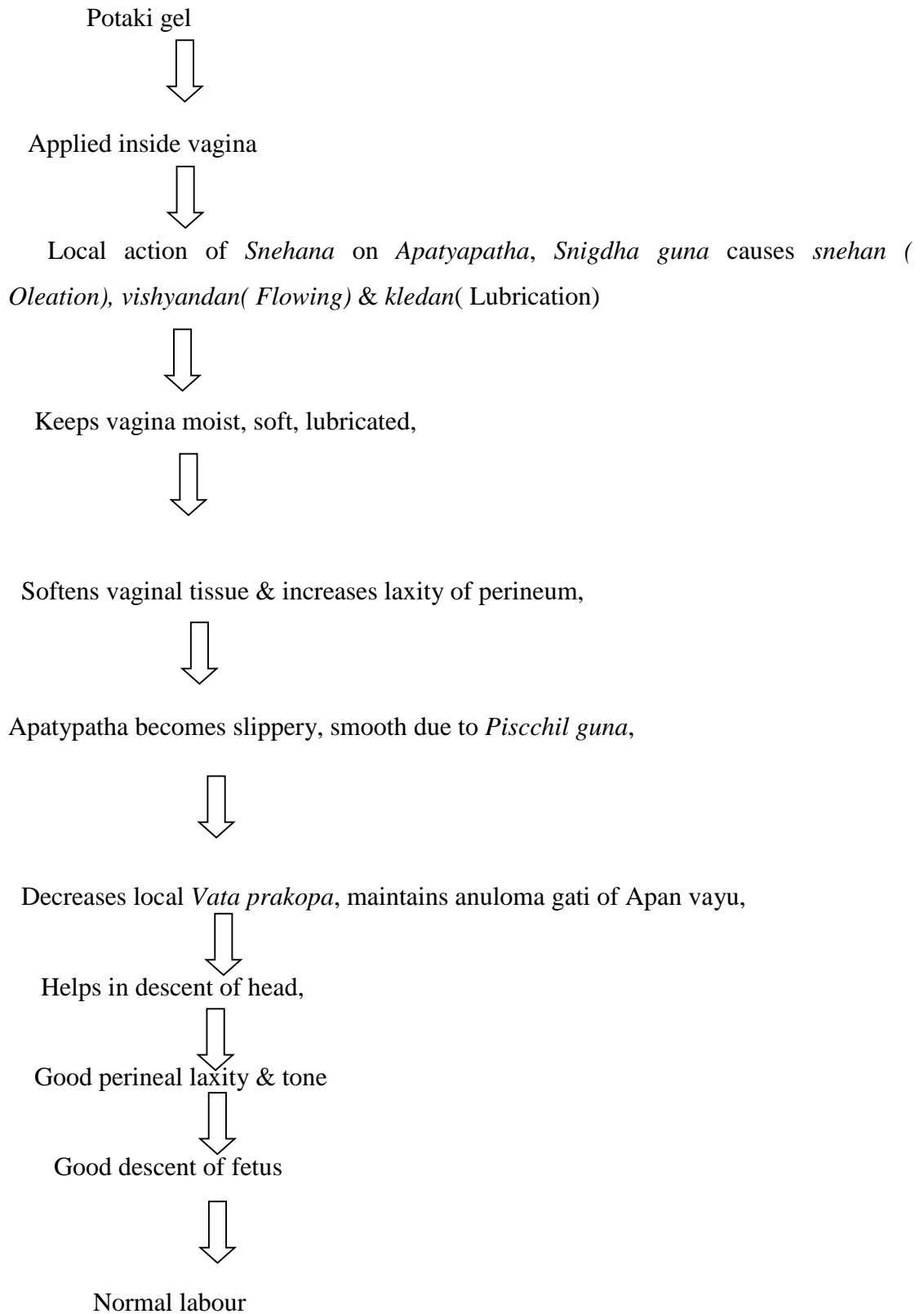
Importance of Apan vayu-

When *Apan Vayu* is in Prakruta Avastha (in normal status) then only it causes expulsion of foetus.(7) Due to different causes *vata prakop* (Vitiated *Vata Dosha*) hampers the normal delivery of foetus, if *Vata prakopa* (Vitiated *Vata Dosha*)takes place because of increased *ruksha guna*(Dryness) , it leads to *sang* (*Garbhasang*) (Obstructed Labour). *Sang* is one of the main symptoms of *Vataprakopa* (12) and due to increased *Ruksha guna* of *Vayu*, Vagina becomes dry, excessive dryness prevents *Anulomgati* of *Apan vayu*, obstruction of fetus occurs ,leading to prolonged & obstructed labour.

Action of Potaki gel-

The properties of *Potaki* are *Snigdha*(Softens & causes Oleation of the tissue wherever applied)(13). *Picchil* (14)(*Sliminess*)& *Sar* (15)(It indicates motility, causes *anulomana* of *vata & mala*) , because of these properties it keeps vagina lubricated & soft, increases laxicity of perineum, due to *Picchil guna* *Apatyapath* becomes slippery, smooth, wet, oily, it maintains *Anulom gati* of *Apan vayu* & leads to easy descent of head, *Potaki* gel increases stretching capacity of muscles, no lacerations, tears were noted in Trial group patients. *Potaki* gel causes local *Snehan* which is favourable for normal delivery. *Acharya Bhavamishra* had mentioned that, Oil should be massaged all-round the vaginal canal during *Prasav Paricharya*. (16) Local application of *sneha dravya* i.e. *Potaki* gel inside vaginal canal is a *vatashamak*(pacifying *Vata Dosha*) & *kapha vrudhikar*(Increases *Kapha Dosha*) *dravya*, It causes local *Snehan* (*Oleation*) ,*Kledana* (lubrication)& *Mardava*(*Softing*), hence soft passage of birth canal becomes more soft & stretchable, causes easy descent of head it facilitate smooth normal vaginal delivery, without causing lacerations ,tears to vagina & perineum.

ACTION OF POTAKI MOOL VAGINAL GEL ON SUKHAPRASAVA



TOTAL DURATION OF LABOUR IN MINUTES- Total duration of labour in Trial group was 547 minuts i.e.,9 hrs & 11min, Total duration of about in Control group was 696 minuts i.e.,11 hrs & 6minuts. Total duration of labour was significantly less in Trial group than Control group. Total duration of labour was decreased by 2 hrs in Trial group, hence local application of *Potaki moola* vaginal gel is useful to prevent prolonged labour.

Labour is said to be prolonged when cervical dilatation is less than 1cm/hr & descent of presenting part is less than 1cm/hr. of minimum of 4 hours observation period (17). The causes are fault in Power (uterine contractions), Passage (cervical dystocia, resistance of perineum), Passenger (mal presentation)(18). All these factors hamper total labour process. *Potaki* gel increases muscle laxity of Apatyapatha (Vagina), increases elasticity of perineum, Snehana(Oleation) causes good descent of head of fetus which is favourable for normal delivery, hence reduces total duration of labour.

MODE OF DELIVERY-28 (46.66%) of patients in Trial group had normal delivery, 2 (3.33 %)patient had Emergency caesarian section. The indication for caesarian section in both of the patients was DTA (Deep Transverse Arrest). In Control group 26 (43.33%) of patient were delivered normally & 3 (5%) patients required Emergency caesarian section, indications for caesarian section was fetal distress due to meconium stained liquer.1 patient from control group needs ventous delivery. *Potaki* Gel minimizes duration of labour without causing lacerations to cervix, vagina, perineum, anal sphincter, as these complications are seen in forceps delivery, *Potaki* Gel avoids such complications, in this way it prevents traumatic PPH also. *Potaki moola* vaginal gel is useful to decrease duration of labour, whenever maternal expulsive efforts are to be avoided, in maternal diseases like Heart diseases, Pulmonary compromise, severe anaemia (19), Whenever there are non-reassuring FHR, in LBW babies, Post maturity in such conditions we have to deliver baby as early as possible, in such conditions to minimize duration of labour *Potaki* Gel is useful.

Birth weight-Trial & Control group were having same birth weight of baby.

Comparison of drug required for Augmentation- Drug required (Inj. Pitocin) for Control group is two times more than Trial group, but not statistically significant. Inadequate contractions needs augmentation.

Episiotomy-All patients from Controlled group had episiotomy, whereas, 1 patient from Trial group had a smooth vaginal delivery without episiotomy. *Potaki* gel increases elasticity of perineum & increases stretching capacity, still normal delivery without episiotomy is risky one. Even though there was marked tissue laxity,episiotomy was conducted to avoid further grievous complications. Episiotomy is now a days considered as a part & parcel of normal labour .To avoid tears, fistula & lacerations Episiotomy is routinely practiced.

FETAL DISTRESS- In Trial group there was no evidence of fetal distress at all, In Control group fetal distress was in noted in 3 patients, these 3 patients were required Emergency caesarian section. Thus, the treatment was effective for *Sukha prasava* & did not cause any complication which would be hazardous to maternal & fetal health.

CONCLUSION-

Efficacy of *Potaki moola* vaginal gel was not seen on uterine contraction. *Potaki moola* vaginal gel has no effects on cervical dilatation & effacement. *Potaki moola* vaginal gel has significant effect on descent of head of fetus. *Potaki* Gel keeps vagina lubricated and soft, increases laxicity of perineum, because of *Picchil Guna* vagina becomes Slippery ,smooth wet and oily, Maintains *Anulom Gati* of *Apan vayu* .Thus, causes easy decscent of head , prevents lacerations and tears of vagina, Thus promotes easy vaginal Delivery. *Potaki* Gel reduces total duration of labour significantly hence it is useful to prevent prolonged & obstructed labour. Neonatal outcome was good as there was no intrapartum hazardous effect of *Potaki moola* vaginal gel seen on mother as well as on fetus, there were no evidence of fetal distress & hypertonic contractions of uterus at all & hence neonatal outcome was good. No Adverse drug reaction observed on maternal pulse, BP, Fetal heart sounds, after application of *Potaki moola* vaginal gel. Pueperal period was uneventful. As *Potaki* Gel avoids prolonged & obstructed labour, it avoids damage of pelvic floor structures & hence it will prevent genital prolaps in later life. *Potaki moola* vaginal gel is significantly useful for *Sukhaprasava*.

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