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TO STUDY THE EFFICACY OF KUSHMANDKHANDA IN GARBHINI PARICHARYA

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ABSTRACT

Objectives: To improve the health status of the mother as well as the offspring by easily available and cost-effective drug for *suprajanana*. **Methods**: Randomised clinical trial was conducted on 96 ANC women in 2 equal groups. *Kushmandakhanda* was given in the dose of 10gm BD to women of trial group having gestational age of >16 wks. till delivery. Routine iron and calcium were advised for women of control group. Observations were drawn from patient's clinical examination and findings during her ANC period and after childbirth. Findings were tabulated & statistical analysis is done using Medcalc Software. **Result:** Trial group is found to have significantly high parameters in women and babies of trial group as compared to control group. **Conclusion**: *Kushmandkhanda* has significant role in *garbhavriddhi* and prevents *garbhini karshya*. It is cost effective and has lesser side effects. It can improve maternal outcome. Hence it is very useful drug for *suprajanana*.

Keywords: *Suprajanana, kushmandkhanda, garbhavriddhi, garbhinikarshya*

INTRODUCTION

It has become a national need to have a progeny that is healthy physically as well as psychologically. Woman in the society play a significant role in creating healthy progeny. The overall health index of any community is governed by the health status of the woman in that community.

The mother has lion's share in every developmental aspect of the child and in order to create healthy progeny special attention must be given to conserve maternal health.

As far as the Indian society is concerned the health of the woman is always neglected. When a woman gets pregnant, she needs a proper care and nutrition. But due to lack of knowledge or poor economy she doesn't get the prenatal care that she needed the most.

This negligence leads to many maternal and foetal complications and ultimately leads to deterioration of human civilization.

Aim and Objectives

1. To study the efficacy of *Kushmandkhanda* in *Garbhini Paricharya*.
2. Standardisation of the prepared drugs.
3. To study the efficacy of *Kushmandkhanda* on *Garbha* and early neonate.
4. To study the effect and side effects of the drug *Kushmandkhanda*.
5. Study of comparison of control group and Trial group**.**

Role of Ayurveda: Time has come that we as Ayurveda physician should analyse without any bias and accept the principles of Ayurveda.

"Garbhinibalvarnahaanim aapadyate visheshen"[1]

It means since the foetus derives relatively more strength and complexion, the pregnant woman suffers loss of strength and complexion and she feels more tiredness.

In our *samhitas* diet regimen for pregnant woman is given.

"Bhojyam tu madhurprayam snigdham hrudyam dravam laghu"

Sanskrutam dipniyam tu nityamevopyojayet [2]

It means pregnant women should consume sweet, smooth, favourite, liquid, light, seasoned and well-cooked food which improves metabolism

Kushmanda (Winter Melon, Latin name-Benincasa Hispida) has property of *balya and bruhaniya. Vriddha kushmanda (pakwa)* is said to be *swadu, laghu* and *dipanam* and *sarvadoshharam. Kushmandkhanda* is mentioned under *raktapitta adhikara* in *Bhaishajya Ratnavali*[3]

Kushmandkhanda having properties of *vataghna, balya, dhatuvardhana, agnidipana*. All these *gunas* are essential for *garbh* and *garbhini poshana.*

Kushmanda is cost effective and readily available in the market and its method of preparation is also very simple. Instead of using costly products for nutrition of pregnant woman we can use this valuable preparation.

Kushmandkhanda is palatable and have very good shelf life.

The effect of this drug will be assessed in both mother as well as foetus.

So, this drug was chosen to be used in *garbhini* considering the lower economical and nutritional status in Indian women**.**

Material and Methods:

Review of The Drug:

Kushmanda:

"Kushmandam bruhanam vrushyam guru pittastravaatnut.

Baalam pittahamshitam madhyam kafakarakam.

Vruddhamanatihimam swadu saksharam dipanam laghu.

Basti shuddhikaram chetoroghrut sarvadoshjit".[4]

Kushmanda has property of *brihan, vrishya, guru* and lowers vitiated *pitta* and *vata*. Tender melon lowers vitiated *pitta*, mildly ripped increases *kafa dosha* and ripped melon is sweet, alkaline, light, and diuretic and lowers all the three *doshas.*

Latin Name: - Benincasa Hispida

Family: -Cucurbitaceae

Chemical Constitution: - Cucurbitine, protein, myosin, viteline, sugar

Parts Used: -Fruit, seed, seed oil.

Properties [5]

Rasa-madhur

Vipaka-Madhur

Veerya-Sheet

Prabhav-Medhya

Guna-guru, Snigdha

Karma: -

Dosha*-Vatashamak, pittashamak*

Fruit-*Tridoshshamak*

Dhatu*: -Rasa-Rasavruddhikar*

Rakta-Raktastambhak, Raktprasadak

Mansa-Bruhan

Shukra-Vrishya, shukravardhak

Mal: Mutral, Basti shodhan

Action on *strotas*:

Annavaha: Anuloman-Seeds are krimighana and mainly used in tapeworm

Rasavaha: Rasavardhak

Raktavaha: Raktavardhak

Shukravaha: Shukravardhak

Mutravaha: Mutral, Bastishuddhikar.

Preparation of Drug Procedure: *Khandakushmand*[6]
Essential components for the preparation of *kushmandkhanda* was collected from genuine resources and taken as follows.

1. *Kushmand* (1 part)
2. *Shunthi* (1/40th part)
3. *Goghrit* 1/4th)
4. *Sharkara* (5 part)

The *Kushmand* pulp was roasted in *ghrit*, till it becomes honey colour.i.e. *Madhunibham*. Then *Sharkarapak* was added in that. *Sharkara vastragalit churna* of *shunthi* was mixed with pulp and *sharkarapaka* thoroughly. The mixture was kept cooling down. Finally, the *Kushmandkhanda* was made, which is divided into cube like structure.

Methodology and clinical study: The research work is designed as follows:

Place of work: Clinical work was carried out at *Prasutitantra* and *Streerog* ward of the Tarachand hospital, Rastapeth, Pune.

Clinical trial design: Randomised clinical trial was conducted on 96 patients. **Determination of the Sample Size:**

Previous work done on *kushmandkhanda* on *garbini* is not available hence efficacy rate of *kushmandkhanda* in *garbhini* is taken as 50% hence by formula

$N=Z^2pq/ E^2$

Where Z=confidence level taken as 95% i.e.1.96

P=Prevalence rate/efficacy rate i.e.50 % (0.5)

Q=1-p=0.5

E=Error taken as 15% i.e.0.15

N=42.68 i.e. 43 patients

Considering 10% dropout rate i.e. 4.3=5 patients

Total sample size come 43+5=48 women

Procedure: Permission for conduction of clinical trial and no objection certificate from Institutional ethical committee was taken.

Selection of Patients: Patient who visited the hospital either in OPD or IPD were selected for the study.

Inclusion criteria:

1. Pregnant women of up to 3rd gravida having age between 18 to 35 yrs.
2. Pregnant women of 16 to 18 wks. gestational age.

Exclusion Criteria:

1. Pregnant women of age below 18 yrs. and 35 yrs.
2. Pregnant women of gestational age below 16 wks.
3. Severe anaemia
4. Renal impairment
5. Pregnancy with Diabetes.
6. PIH
7. Twin pregnancy
8. Congenital anomaly.
9. BOH

Clinical Study: -

1. According to selection criteria, 96 patients were selected and randomly divided in two groups-
    a. Trial group and
    b. Control group.
2. Written informed consent was taken from every patient.
3. A CRF (case paper format) was made for the study.
4. Proper case history was taken and case record proforma was filled.
5. Clinical findings and observations were recorded as per case Proforma.

Group A- Trial group

a) Number of patients =48
b) Treatment- *Kushmandkhanda*.
c) Dose- 10 gm.
d) *Sevankaal-Rasayan kaal* i.e.- early morning and evening.
e) Duration- after enrolment till delivery of the patient
f) Patients routine Iron and Calcium supplementation were continued.

Group B- Control Group

a) Number of patients=48
b) Treatment- Routine Iron and Calcium supplementation only.

Patients in both the groups should continue the routine ANC profile.

Follow Up: - During course of treatment detailed observations and records were taken every 15 days till 32nd and weekly till delivery of the patient. Hb% was measured once in a month.

***Method of Administration of Drug**

1. **Drug**- *Kushmandkhanda*.
2. **Dose**- 10 gm.

3. ***Sevankaal*** - *Rasayan kaal* i.e. early morning and evening.
4. **Duration**- after enrolment till delivery of the patient.

***Withdrawal of Subjects: -**

1. Patients willing to discontinue during treatment.
2. Patients lost for three consecutive follow ups.

Assessment Criteria: Observations were drawn from patient's clinical examination, and findings during her ANC period; and after childbirth, from the examination of neonate.

- Findings were tabulated for proper assessment.
- Statistical analysis is done using Medcalc software.
- During study, following parameters were assessed.

➢ **Assessment criteria during pregnancy**.

Following data is assessed in every visit from 16 wk. of pregnancy till delivery.

1. SFH (in Cm)
2. Abdominal Girth (in Cm)
3. Weight of the Pt. (in Kg)
4. Mid Arm Circumference (in Cm)
5. Hob% (assessed monthly)

➢ **Assessment after delivery**

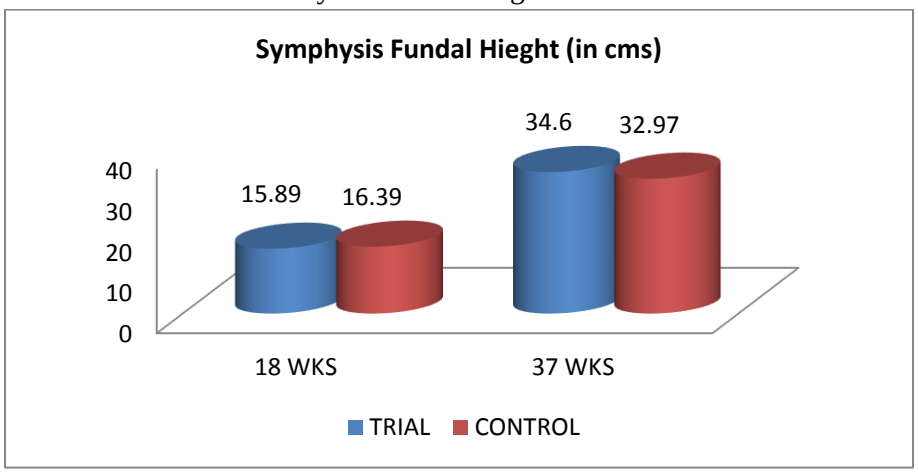
1. Wt. of foetus at birth.
2. Wt. of placenta
3. Mid arm circumference of fetus at birth
4. Foetal wt loss in 1st seven days.
5. Icterus
6. Wt. of patients after delivery.

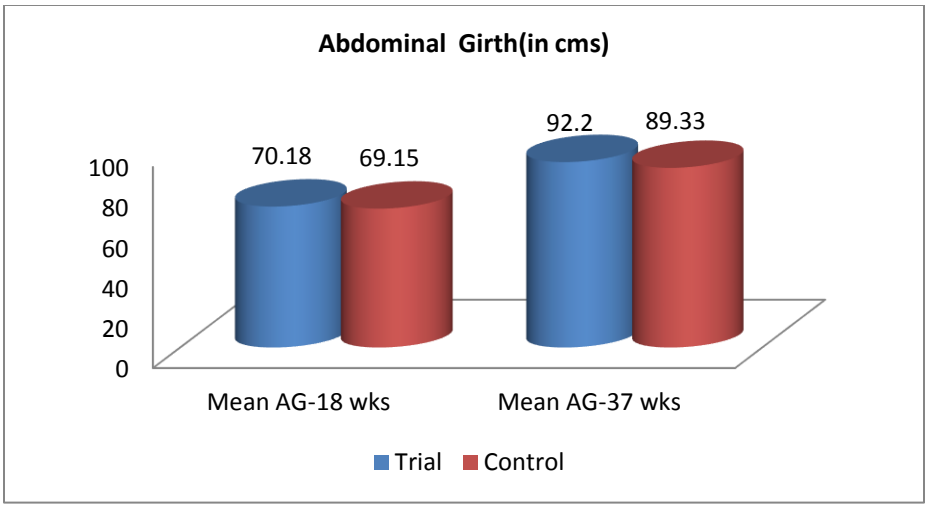
Observation and Results: This Clinical work is aimed at the study the efficacy of *Kushmandkhanda* in *garbhini paricharya*.

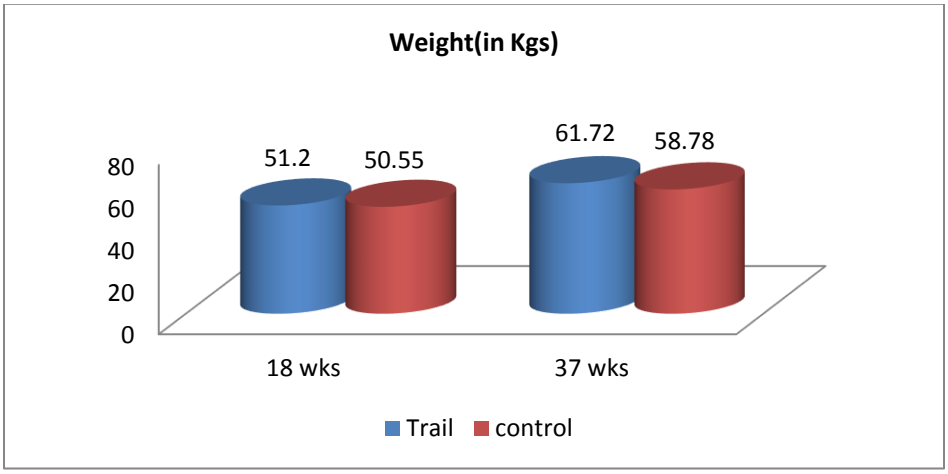
Null Hypothesis (H0): There is no significant difference of improvement in the assessment parameters decided for *garbhavriddhi*.

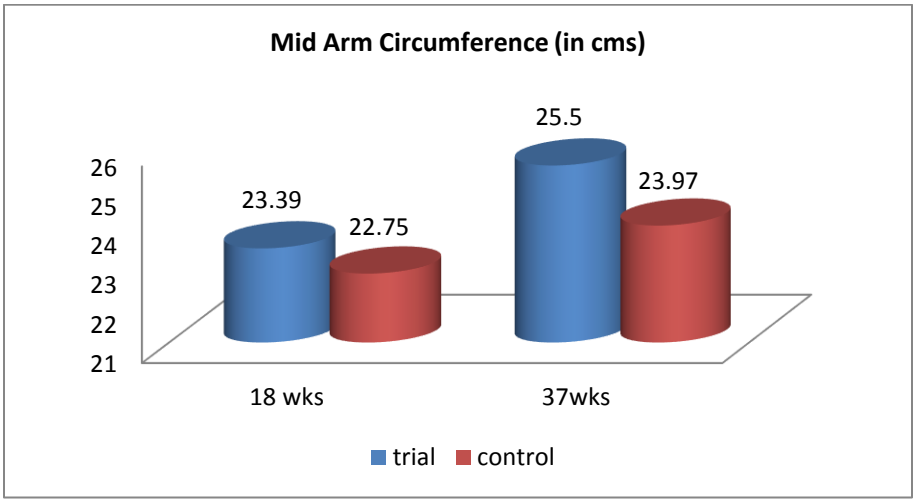
Alternate Hypothesis (H1): There is significant difference of improvement in the assessment parameter decided for *Garbhavriddhi*.

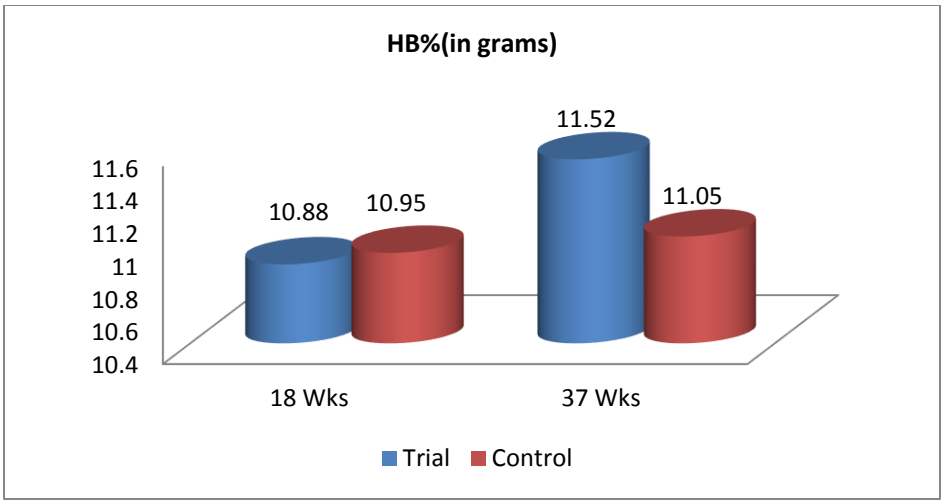
Statistical analysis is done using **MedCalc Software.**

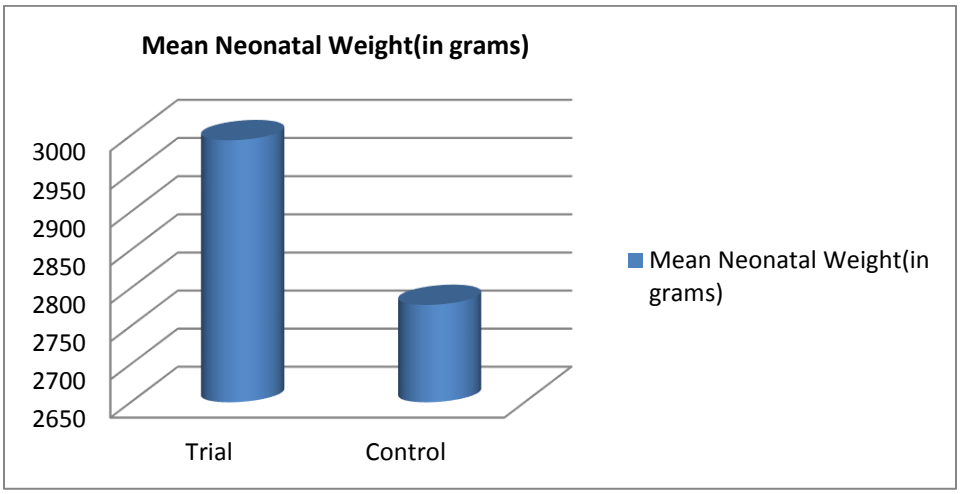


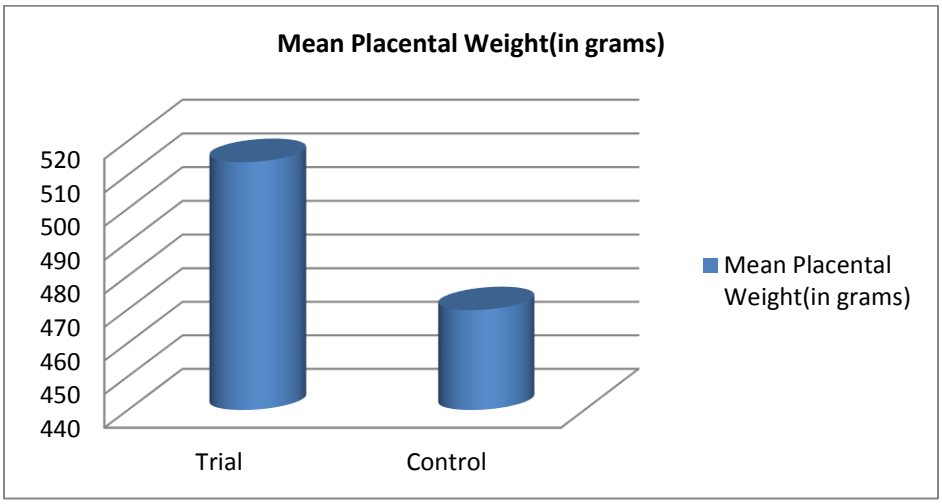

Abdominal Girth(in cms)
100
80
60
40
20
0
70.18
69.15
92.2
89.33
Mean AG-18 wks
Mean AG-37 wks
Trial
Control

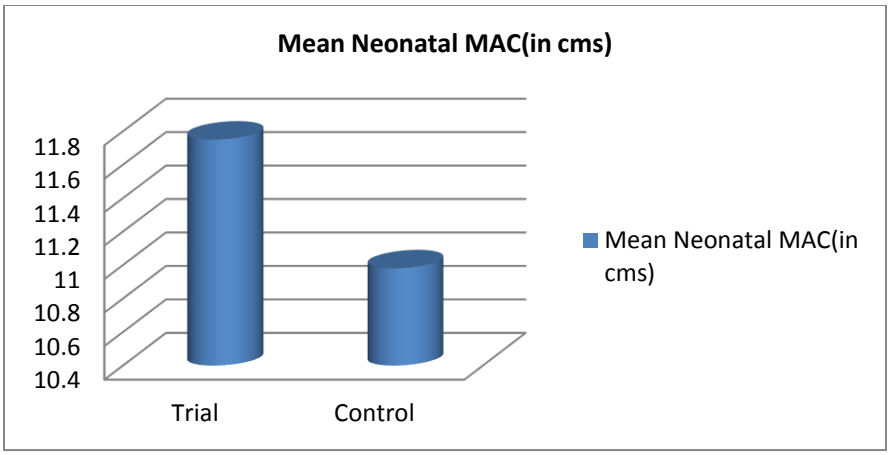

Weight(in Kgs)
80
60
40
20
0
51.2
50.55
61.72
58.78
18 wks
37 wks
Trail
control

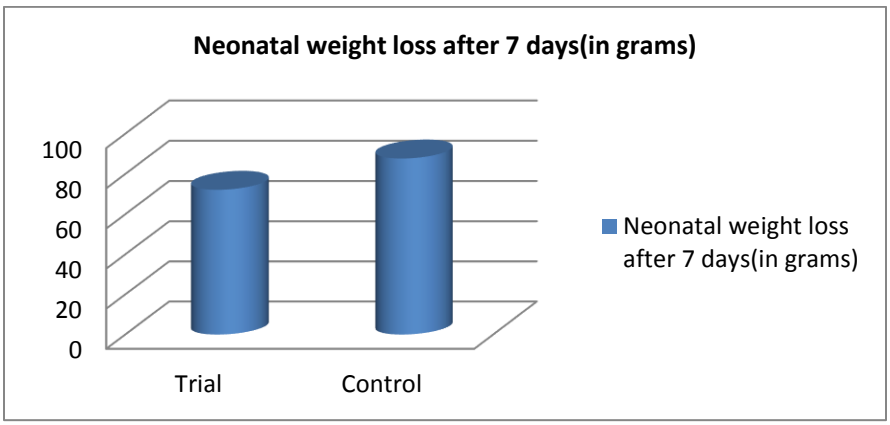

Mid Arm Circumference (in cms)
26
25
24
23
22
21
23.39
22.75
25.5
23.97
18 wks
37wks
trial
control

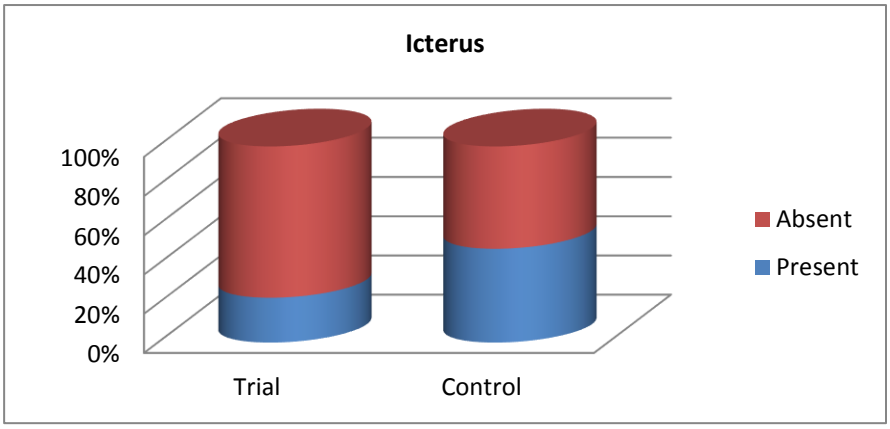

HB%(in grams)
11.6
11.4
11.2
11
10.8
10.6
10.4
10.88
10.95
11.52
11.05
18 Wks
37 Wks
Trial
Control


Mean Neonatal Weight(in grams)
3000
2950
2900
2850
2800
2750
2700
2650
Trial
Control
Mean Neonatal Weight(in grams)


Mean Placental Weight(in grams)
520
510
500
490
480
470
460
450
440
Trial
Control
Mean Placental Weight(in grams)







DISCUSSION

As per the observations, following points were discussed. Clinical study shows Symphysial fundal height (SFH) is significant in trial group as compared to control group at 37 wks. Also, the birth weight of foetus is found to be more in Trial group as compared to Control group. This indicates that the *Kushmandkhanda* is effective for the *Garbhavriddhi*.

The clinical study shows Mid Arm Circumference which is indicator of maternal muscle bulk is more raised in trial group as compared to control group at 37 wks. So, it is significant in trial group as compared to control group. Thus, the drug *kushmandkhanda* carry out *bruhan* and *mans dhatu poshankarma* of *garbhini*. Abdominal Girth of mother gives estimation of size of the foetus & amniotic fluid volume. Its steady rise in

trial group is significant than control group. This demonstrates the *Kushmandkhanda* helps in *Mansa dhatu poshanakarma* in *Garbha* and *garbhini*. Maternal weight gain in *garbhini* is significant in trial group than control group at 37 wks. This indicates that here *bruhankarma* has occurred from 5th month onwards. Thus, *Kushmandkhanda* helps for weight gain by its properties-*Guru guna*, *Madhur*-Rasa, *Vipak* and *Bruhan*-action. *Kushmandkhanda* contains proteins, vitelline and sugar

The clinical study shows the significant level of maternal Hb% in trial group, as there is increase in Hb% at 37 wks. as compared to 18 wks. While it is insignificant in control group as there is decreased level of Hb% at 37 wks. as compared to 18 wks. This indicates the *Kushmandkhanda* is helpful for increasing Hb% in mother.

Neonatal Mid Arm Circumference-indicates the Muscle bulk of foetal Musculature. Its significance in Trial group as compared to control group shows *Mansa Dhatu poshan* in the foetus.

Kushmand, *Sharkara* and *Goghrit* all are *Madhur* and *Guru*. Due to its dominant *Guru Guna* and *Prithvi Mahabhutadhikya*, it proves to be *Guna Samanya dravya* to the *Mansa Dhatu* of *Garbha*.

Birth Weight of foetus summarizes the overall somatic, physiological and biochemical growth of the foetus. It indicates nourishment of all the *Dhatus* of *Garbha*. Trial group has shown significant birth weight (Trial group mean= 2993), Control group mean= 2778, P<0.05). *Kushmanda*, *Goghrit* and *Sharkara* are having *Bruhan* property. *Goghrit* is also *Rasayan dravya*. These properties of drugs give perfect nutrition for development of all the *Dhatus* at the time of its need. Thus, the effect of our drug *Kushmandkhanda* is proven at this parameter.

Trial group (mean= 513.75) shows significant increase in Placental Weight than that of the Control group (mean = 469.79). *Kushmandkhanda* is *raktprasdan dravya* and hence form well-nourished *rakta dhatu*. As *jarayu* or *apara* is formed from *rakta*, good quality *rakta dhatu* thus formed helps in placental nourishment.

The clinical study shows Neonatal weight loss in first 7 days Non-significant level (P>0.05). But, the weight loss in Trial group (72.18) is less as compare to Control group (mean =87.72). Hence, *Kushmandkhanda* helps to maintain weight in neonate.

In trial group icterus present in 11 patients whereas in control group it is present in 23 patients. The study also shows that, the `development of Icterus in neonate is less in Trial group as compared to Control group. *Kushmandakhanda* contains *pittashamak* and *varnaprasadan dravyas*. *Kushmanda*, *Goghrit* and *Sharkara* have *madhur rasa*, *vipak* and *sheet veerya*. As *Rakta* and *pitta* has *Ashraya-Ashreya bhava*. *Kushmandkhanda* carry out *pittashaman* and *raktashodhan karya* and doesn't allow the icterus to develop. There is the need of further extensive study with larger sample size.

Maternal Weight loss after delivery:-The clinical study shows Non-significant level (P=0.06).As the birth weight and placental weight is more in trial group, this means the gain in weight was due to foetal component so the weight loss is more after delivery. This suggests the need of further extensive study with larger sample size.

CONCLUSION

The drug *kushmandkhanda* is proved to be useful in increasing Symphysis Fundal Height, Abdominal girth, Mid arm circumference of pregnant woman. It has a significant role in *Garbhavriddhi*. It is useful drug for prevention of *Garbhini Karshya*. It maintains well Haemoglobin status throughout pregnancy. *Kushmandkhanda* has a significant role in improving foetal and placenta weight. The drugs used in *kushmandkhanda* have quality of *raktaprasadan* which shows development of icterus is less as compared to control group.

All the drugs in *kushmandkhanda* which were used for clinical study are cost effective, lesser side effects and widely available. By using this drug, we can improve the Maternal and Foetal outcome in Pregnancy.

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