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STUDY ON THE *VRANAROPANA* EFFECT OF ORAL APPLICATION OF *DARVYADICHURNA* IN *MUKHAPAKA* W. S. R. TO ORAL THRUSH IN INFANT

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ABSTRACT

Acharya Sharangdhara explains 22 *Balroga*in*Samhita*&*Mukhapaka* is one of them. According to *AcharyaSushruta*Mukhapaka is*sarvasaravyadhi*&it is caused due to *Tridosha*&*Rakta*. According to modern science Oral thrush is a very common infection in infants that causes irritation in and around a baby's mouth. It is caused by the overgrowth of the yeast (a type of fungus) called Candida albicans. Candida overgrowth can lead to vaginal (yeast) infections, diaper rashes, or oral thrush. Open randomized control clinical trial study was designed. Randomly selected 60 diagnosed patients of *Mukhapakavyadhi* attending the O.P.D. of our *Ayurveda Rugnalaya* were divided into two groups – Group A and Group B. Group A treated with *DarvyadiChurna* and Group B treated with Nystatin Suspension for 7 days as a local application in oral cavity thrice a day. In the present study, according collected data, it is observed that both the drugs i.e.DarvyadiChurna and Nystatin Suspension had provided significant relief in all the sign and symptoms of *Mukhapaka*. DarvyadiChurnahad provided relatively better relief than Nystatin Suspension for Excessive Salivation symptom of*Mukhapaka*. Nystatin Suspensionhasprovided relatively better relief than *DarvyadiChurna*for Site of lesion and Difficulty in breast feeding symptom of*Mukhapaka*.

Keywords: *Balroga, Kaumarbhrutya, Mukhapaka, Darvyadi Churna,* Nystatin

INTRODUCTION

Ayurveda is science of life and it is divided into eight different branches *Kaumarbhritya* is one of most important parts of *Ashtanga Ayurveda*. It covers all aspects of child growth from the birth to adolescence phase of life including treatment for problems at every stage. According to *Acharya Sharangdhara* there are 22 *Balrog* [(1)] & *Mukhapaka* is one of them. According to *Acharya Sushruta Mukhapaka* is *sarvasaravyadhi* & it is caused due to *Tridosha* & *Rakta*.

According to modern science Oral thrush is a very common infection in infants that causes irritation in and around a baby's mouth. It is caused by the overgrowth of the yeast (a type of fungus) called Candida albicans. Candida overgrowth can lead to vaginal (yeast) infections, diaper rashes, or oral thrush. Most people (including infants) naturally have Candidain their mouths and digestive tracts, which areconsidered normal growth. The amount is controlled by a healthy immune system and some "good" bacteria. If the immune system is weakened (due to an illness or medicines like chemotherapy), or if the immune system is not fully developed as is the case in infants, the Candida in the digestive tract can overgrow and lead to an infection.

Need of selection:-

The infection is not very common in the general population butit is estimated about 5 % to 7% of new born babies will develop oral candidiasis. The prevalence of oral candidiasis among AIDS patients is estimated to be between 9% and 31%, and studies have documented clinical evidence of oral candidiasis in nearly 20% of cancer patients.

So Patients of *Mukhapaka* are in need of a genuine medicine which is non-toxic & has no side effect. *DarvyadiChurna* with *Madhu* is stated in *BhaishajyaRatnavali*, chapter number 71 and so it was chosen. *Mukhapaka*is one of the common-diseases as it hampers breastfeeding which is major issue in infants. Ingredients of *DarvyadiChurna* are easily available and cost effective and easy to apply.

AIM AND OBJECTIVES

Aim: - Study the *Vranaropana*effect of oral application of *DarvyadiChurna*in *Mukhapaka.*

Objectives: -

1) To study the disease *Mukhapka*as an *Ayurvedic* and Modern disease.
2) Detail studies of effect *Darvyadichurna*with*Madhu*in the treatment of *Mukhapaka.*
3) To provide the cost effective and easier therapy in *Mukhapaka.*

MATERIALS AND METHODS

MATERIALS

1) *DarvyadiChurna*

2) Nystatin Suspension

Group A – *DarvyadiChurna* [2]

- *Darvi* (Daruharidra – Berberisaristata)
- *Yashti* (Yashtimadhu – Glycerrhizaglabra)
- *Abhaya* (Haritaki – Terminaliachebula)
- *Jatipatra* (Jasminumofficinale)

Group B –NystatinSuspension (Savorite company– Mystatin OS brand name)

Drug Standardization: - Standardization of the drug was done in an authentic laboratory.

Control Drug: - Standard preparation of NystatinSuspensionwas given for oral application the same formulation was prescribed to all the subjects of Control Group.

METHODOLOGY

Randomly selected 60 diagnosed patients of *Mukhapakavyadhi* attending the O.P.D. of C.S.M.S.S. *AyurvedMahavidyalaya,* Kanchanwadi, Aurangabad, Maharashtra; wererandomly and equally divided into two groups –Group A and Group B

MANAGEMENT OF THE PATIENT

Randomly selected 60 patients, fulfilling the above criteria and having following sign and symptoms were divided into two groups.

— *Vranotapatti*(Formations of white curd like ulcer)
— *Lalastrava*(Excessive salivation)
— *Stanyadvesha* (Refusal for breast feeding)

Table no .1

	Group A (Trial Group)	**Group B (Control Group)**
Drug name	Oral application of Darvyadi-Churna +Madhu	Oral application of Nystatin Suspension
Route of Administration	Local application in oral cavity	Local application in oral cavity
Time of administration	3 times a day	3 times a day

Duration	7 days.	7 days.
Follow up	3rd day,5th day, 7th day	3rd day,5th day, 7th day
Number of patients	30.	30

SELECTION CRITERIA

INCLUSION CRITERIA:-

- Infants suffering from*Mukhapaka* (oral thrush)
- Age group 0 to 1 year irrespective of sex and religion
- Term Babies (≥37 weeks gestation)
- Babies weighing (≥2000gm.)
- Parents of Patient willing for trial.

EXCLUSIONCRITERIA:-

- Age above 1 year
- Preterm babies (‹37 weeks gestation)
- Babies having congenital anomalies.
- Babies weighing (‹2000gm)
- Babies having any systemic disorder.
- Babies of HIV+ mother

Investigations

1. *Stanyaparikshan* (A 50 ml of water was taken in a beaker. A drop of Stanya was put into the water. Observations were noted and according to that Doshadushti of Stanya was noted in each patient).
2. Oral swab culture (if necessary)

Investgations were performed for the purpose of assessing the general condition of patient and to exclude the other pathological conditions.

ADVICE

Table no. 2

Complete remission	**75 – 100% relief inallsigns and symptoms.**
Markedly improved	50 – 75% relief in all signs and symptoms.
Improved	25 – 50% relief in all signs and symptoms.
No cure	<25% relief in all signs and symptoms.

CONSENT OF THE PATIENT

An informed written consent of parents or guardians of the patients included in this study was taken in the language best understood to them before starting the treatment.

OBSERVATIONS

Graph no. 1 - Age wise distribution

Cleaning of Mother's breast before each and every breast feed

*Pathyapathyapalan*for*stanyadushtika-raaahar – vihar* was adviced to both group's patient mother and hand wash before application of the drug.

CRITERIA FOR ASSESSMENT:-

Assessment of every patient was totally based on clinical observation and information given by patient's mother.

Gradation of Symptoms

Site of Lesion

Grade 0 - Absent

Grade 1 - Only tongue involved

Grade 2 - Tongue along with buccal mucosa

Grade 3 - Entire oral cavity with tongue

Excessive salivation

Grade 0 - Normal salivation

Grade 1 - Collection of salive in mouth

Grade 2 - Mild drooling of saliva

Grade 3 - Continuous drooling of saliva

Difficulty in breast feeding

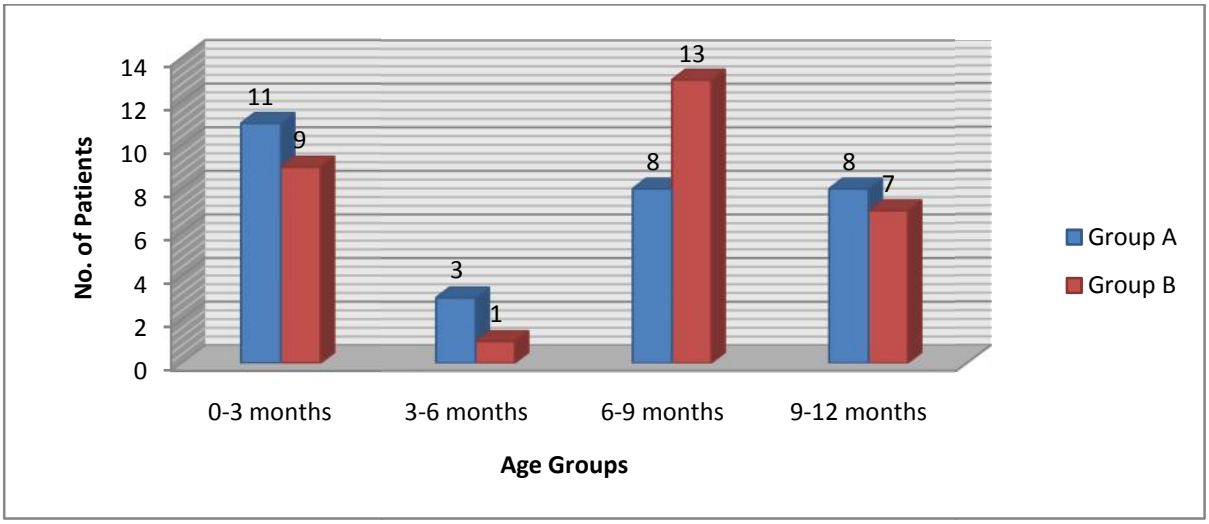
Grade 0 - Normal breast feeding

Grade 1 - Breast feeding less than normal

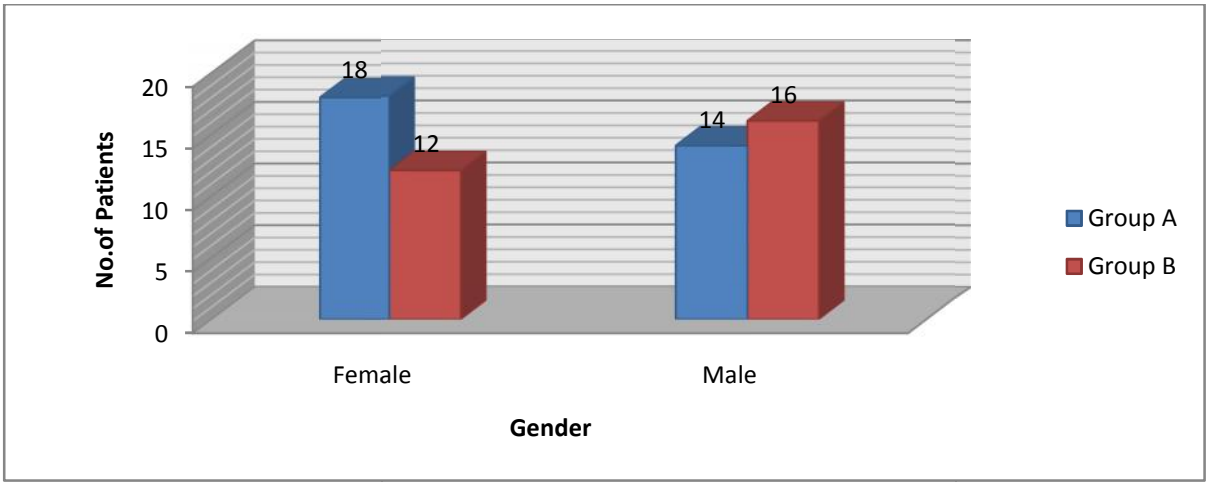
Grade 2 - Intermittent breast feeding with difficulty

Grade 3 - Unable to breast feeding

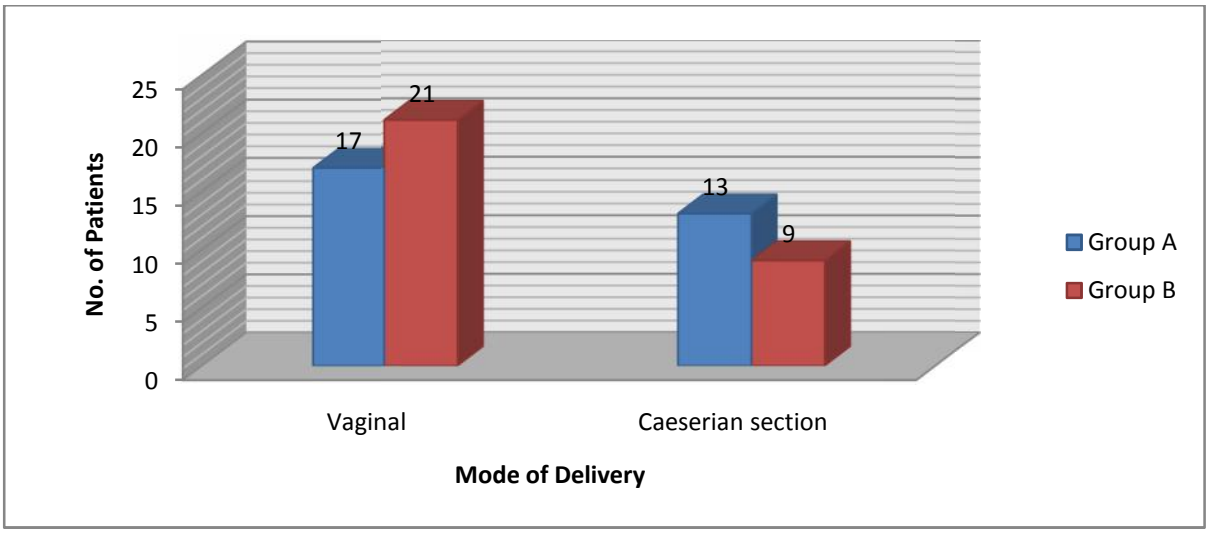
Overall assessment



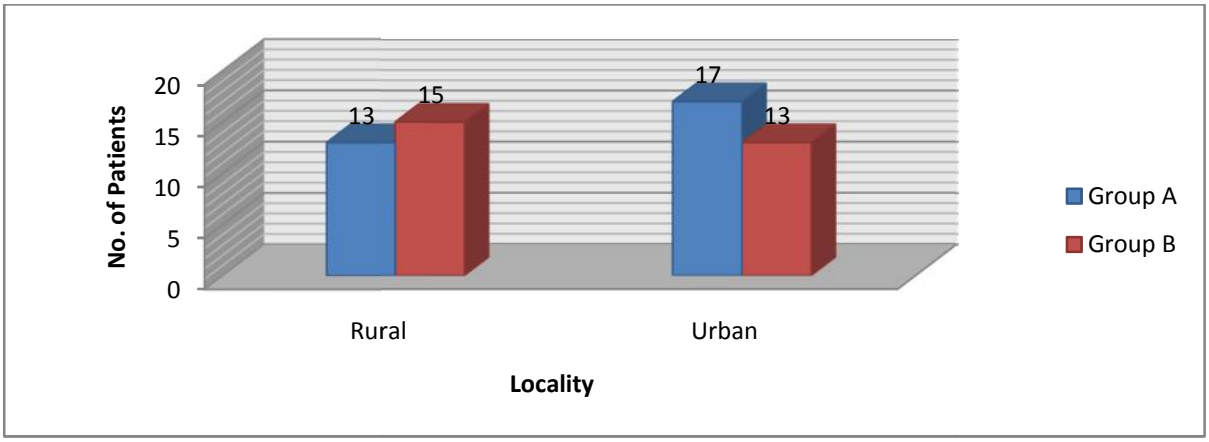
Graph no. 2- Gender wise distribution



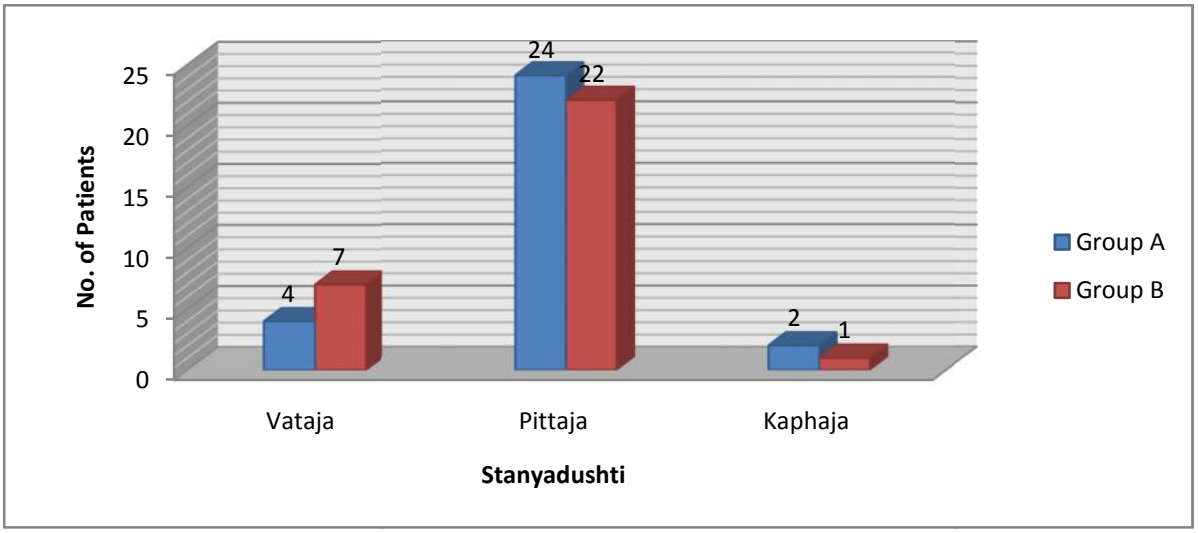
Graph no. 3 - Mode of Delivery wise distribution



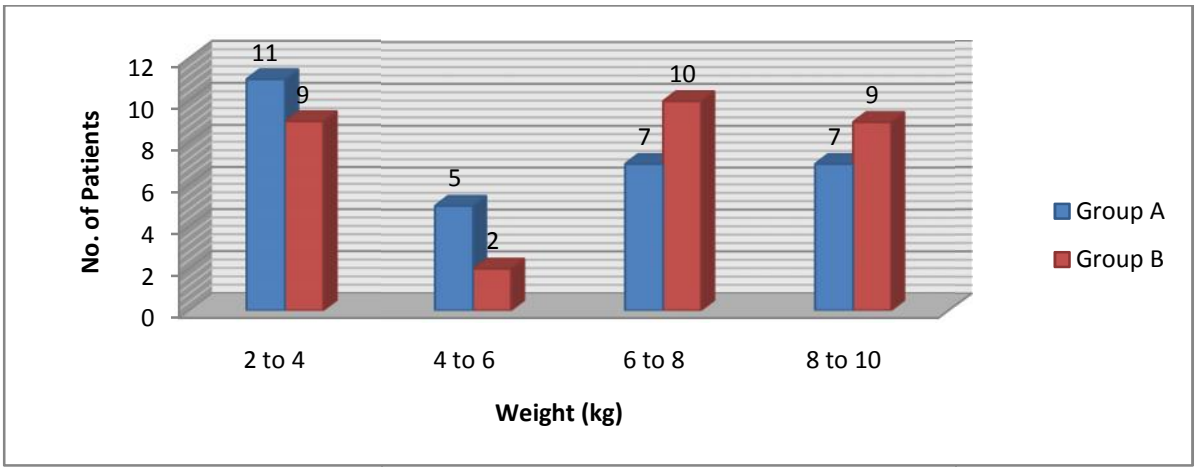
Graph no. 4 - Locality wise distribution



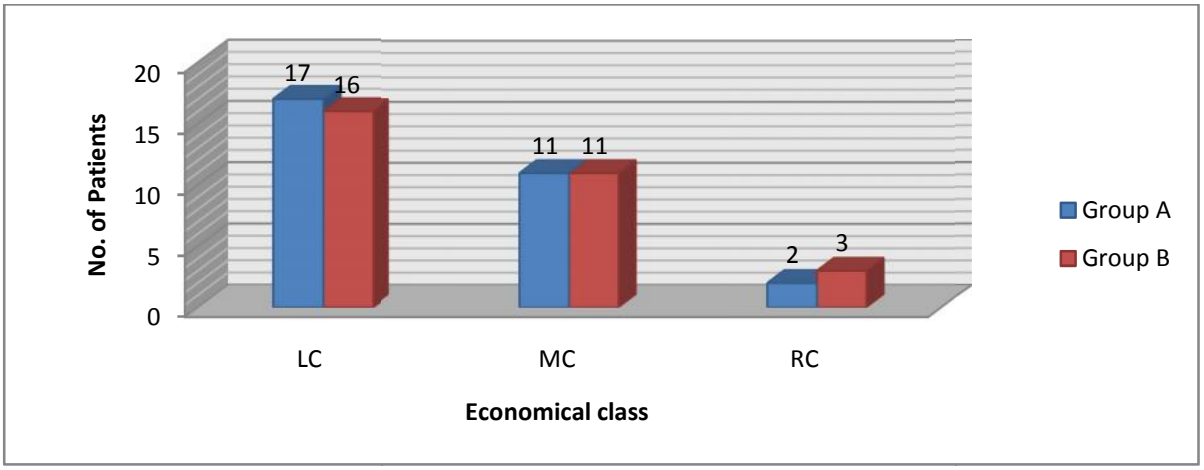
Graph no. 5 - *Stanyadushti* wise distribution



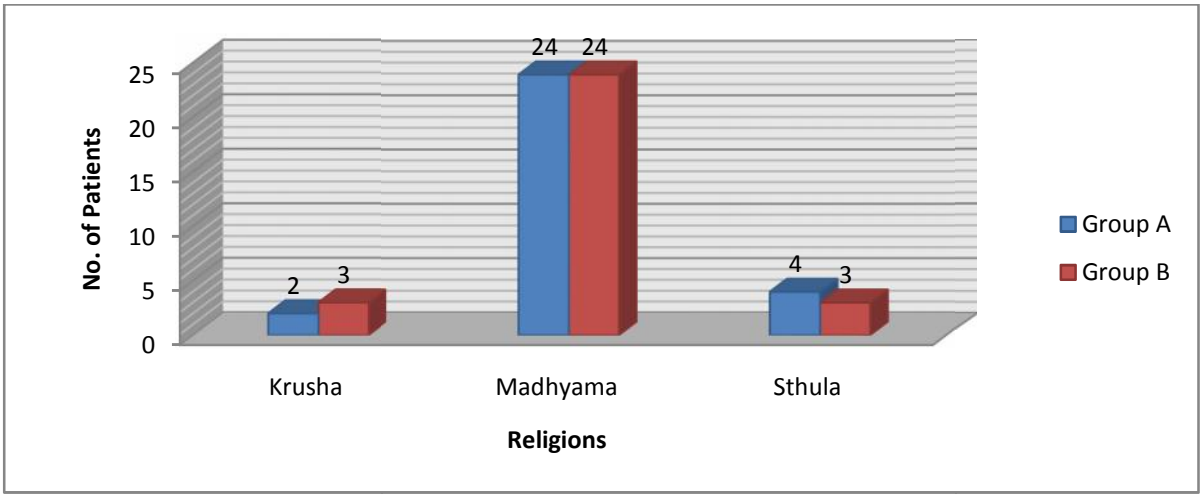
Graph no. 6 - Weight wise distribution



Graph no. 7 - Socio Economical status wise distribution



Graph no. 8- *Akruti* wise distribution



EFFECT OF THERAPIES:

A. Effect of *DARVYADICHURNA*:

In this group, 30 patients of *MUKHAPAKA* completed the full course of treatment and so the effect of group A therapy quoted from here onwards.

Statistical Analysis:-

The null hypothesis, H_0: The effect of treatment on all symptoms in *DARVYADICHURNA* (Group A) is not significant. The alternative hypothesis H_a: The effect of treatment on all symptoms in *DARVYADICHURNA* (Group A) is significant. All the values in following tables are calculated by using Wilcoxon sign rank test. Statistical analysis of every symptom is described separately in the following tables.

Table no. 3

Symptoms	Site of Lesion	Excessive Salivation	Difficulty in Breast Feeding
N	21	27	24
Mean Score, B.T.	1.967	2.067	1.8
Mean Score, A.T.	1.1	0.773	0.8
S.D. (+), B.T.	0.556	0.784	0.714
S.D. (+), A.T.	0.48	0.691	0.714
S.E.(+), B.T.	0.101	0.143	0.13

S.E.(+), A.T.	0.087	0.126	0.13
W	231	378	300
Z	- 4.014	- 4.54	- 4.2857
P	P<0.001	P<0.001	P<0.001
Result	Highly Significant	Highly Significant	Very Significant

As the p value is lower than the significance level alpha = 0.05, we should reject the null hypothesis H_0 and accept the alternative hypothesis H_a.

B. Effect of NYSTATIN SUSPENSION:

In this group, 30 patients of *MUKHAPAKA* completed the full course of treatment and so the effect of group B therapy quoted from here onwards.

Statistical Analysis:-

The null hypothesis, H_0: The effect of treatment on all symptoms in NYSTATIN SUSPENSION (Group B) is not significant. The alternative hypothesis H_a: The effect of treatment on all symptoms in NYSTATIN SUSPENSION (Group B) is significant. All the values in following tables are calculated by using Wilcoxon sign rank test. Statistical analysis of every symptom is described separately in the following tables.

Table no. 4

Symptoms	Site of Lesion	Excessive Salivation	Difficulty in Breast Feeding
N	27	26	28
Mean Score, B.T.	1.9	2.133	2.033
Mean Score, A.T.	0.6	1	0.633
S.D. (+), B.T.	0.48	0.628	0.556
S.D. (+), A.T.	0.491	0.587	0.764
S.E.(+), B.T.	0.087	0.114	0.101
S.E.(+), A.T.	0.089	0.107	0.139
W	378	351	406
Z	- 4.5407	- 4.457	- 4.6226
P	P<0.001	P<0.001	P<0.001
Result	Highly Significant	Highly Significant	Highly Significant

As the p value is lower than the significance level alpha = 0.05, we should reject the null hypothesis H_0 and accept the alternative hypothesis H_a.

C: COMPARATIVE ANALYSIS:

Statistical Analysis:-

The null hypothesis, H_0: The effect of treatment on all symptoms in *DARVYADICHURNA* (Group A) is not significant than in NYSTATIN SUSPENSION (Group B). The alternative hypothesis H_a:The effect of treatment on all symptoms in *DARVYADICHURNA* (Group A) is significant than in NYSTATIN SUSPENSION (Group B). All the values in following tables are calculated by using Mann – Whiteny test. Let us see the statistical analysis for every symptom separately.

Table no. 5

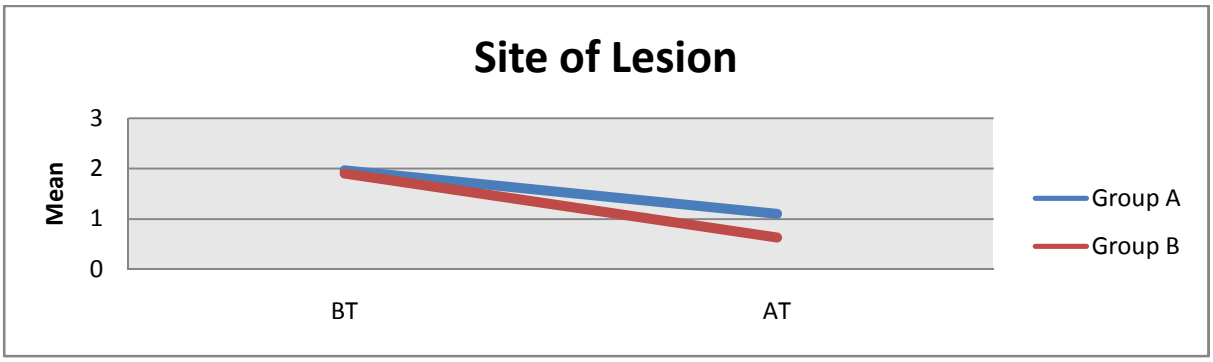
Symptoms	Site of Lesion	Excessive Salivation	Difficulty in Breast Feeding
N	48	53	52
Mean of Group A	1.238	1.481	1.333
Mean of Group B	1.407	1.308	1.5
S.D. (+) of Group A	0.436	0.579	0.564
S.D. (+) of Group B	0.572	0.47	0.509
S.E.(+) of Group A	0.095	0.111	0.115
S.E.(+) of Group B	0.11	0.092	0.096
U	243.5	299	273
U '	523.5	403	399
P	>0.01	<0.05	>0.01

As the p value is greater than the significance level alpha = 0.05, we should accept the null hypothesis H_0 and reject the alternative hypothesis H_a, i.e. *DARVYA-DICHURNA* (Group A) is not significant than in NYSTATIN SUSPENSION (Group B) for Site of Lesion and for Difficulty in Breast Feeding.

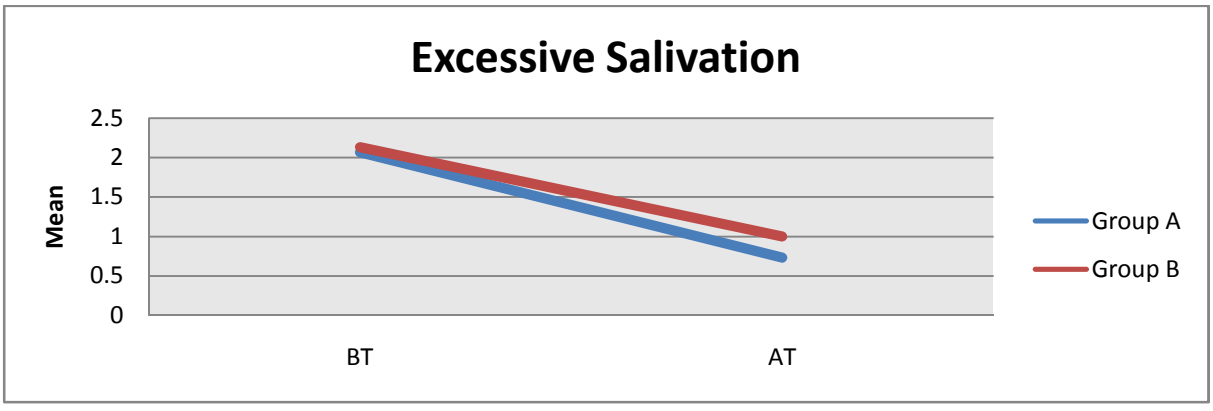
As the p value is lower than the significance level alpha = 0.05, we should reject the null hypothesis H_0 and accept the alternative hypothesis H_a, i.e. *DARVYA-DICHURNA* (Group A) is significant than in NYSTATIN SUSPENSION (Group B) for Excessive Salivation.

Graphical Representation

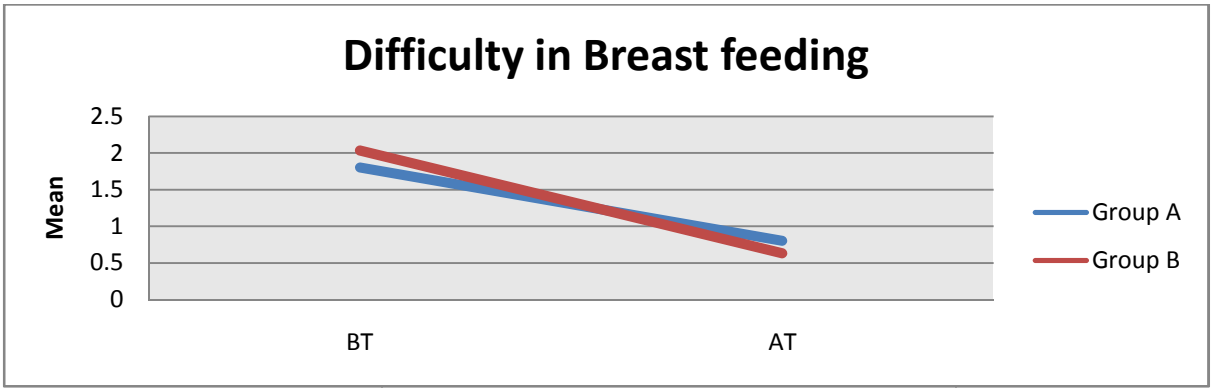
Graph no. 9



Graph no. 10



Graph no. 11



Graph no. 12 - OVERALL EFFECT OF THERAPY on 60 patients of *MUKHAPAKA*

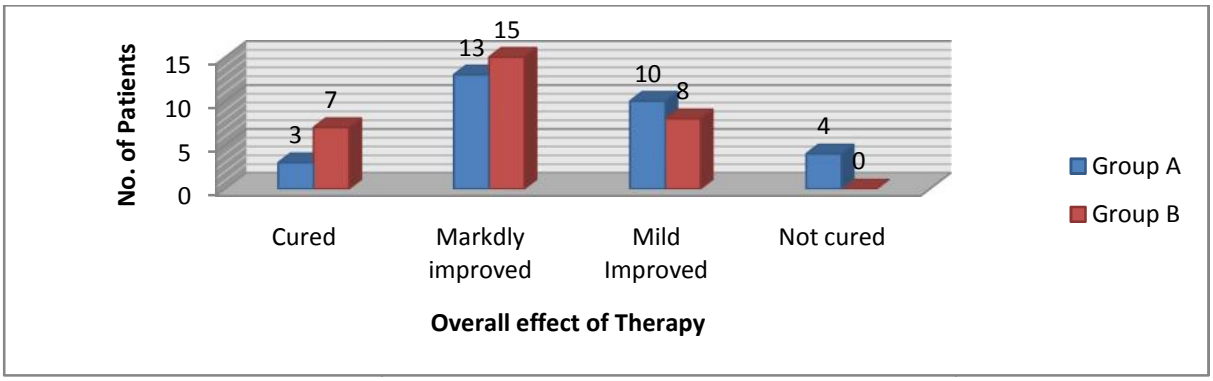


Photo of Patient

Before Treatment (Group A)

After Treatment (Group A)

RESULT

In the present study, according collected data, it is observed that both the drugs i.e. *DARVYADICHURNA*NYSTATIN SUSPENSION had provided significant relief in all the sign and symptoms of *MUKHAPAKA.*

*DARVYADICHURN A*had provided relatively better relief than NYSTATIN SUSPENSION for Excessive Salivation symptom of*MUKHAPAKA*.

NYSTATIN SUSPENSION has provided relatively better relief than *DARVYADICHURNA* for Site of lesion and Difficulty in breast feeding symptom of *MUKHAPAKA.*

DISCUSSION

Mukhapaka (oral thrush) is a disease mainly seen in children under the age of 6 month but it is comparatively more common in neonatal age. Out of 60 babies 20 babies i.e. 33.33 % were observed in between 1 to 3 months of age. Female babies born in hospital are more than males but with minor difference in this study. Oral thrush was found to be more in babies born per vaginally as compare to babies born through caserian section. 63.33 % patients born through vaginal delivery. This predominance is due to getting fungal infection from birth canal mother during delivery. 76.67 % patient's mother having *pittajastanyadushti*. *Pittajastanyadusthi* was seen maximum may be because of not following the *sutikaparicharya* and having the *pitta prakopakaaahara-vihara*. Effect on Sign & symptoms of *Mukhapaka*:-

All the signs and symptoms of *Mukhapaka* (oral thrush) are releaved significantly with the use of *DARVYADICHURNA.*

Statistically present clinical study shows that significant reduction in signs i.e. site of lesion, excessive salivation and difficulty in breast feeding as the p value is < 0.001 for all the signs and significant.

Probable action of *Darvyadichurna*:-

Table no. 6

	Rasa	*Vipaka*	*Virya*
Daruharidra	*Tikta, Kashaya*	*Katu*	*Ushna*
Yashtimadhu	*Madhura*	*Madhura*	*Shita*
Haritaki	*Kashaya*	*Madhura*	*Ushna*
Jatipatra	*Tikta, Kashaya*	*Katu*	*Ushna*
Madhu	*Madhura, Kashaya*	*Katu*	*Shita*

Rasa of *Daruharidra* (Berberisaristata), Haritaki (Terminaliachebula), *Jat I* (Jasminum officinale) and *Madhu* is *Kashaya*. *Kashaya rasa* is generally doing*Stambhan karma* and to maintain the *Rukshata* in body *kashaya rasa* is*pradhan*. It does the *Kaphashaman* in *Mukhapaka*. *Tikta rasa* is also present in *Daruharidra, Haritaki*and*Jati*. *Tikta rasa* according to its *guna* such as *Laghu, Ruksha, Vishada* do the *shamana*of the *Kapha*. *Madhuravipaka* is used to do the *Pitta shamana*. By doing the *Dhatuvardhana,* it does the *ropana of Vrana*. *Vipaka* of *Yashtimadhu* (Glycerrhizaglabra) and Haritaki is Madhura. *Katuvipaka* by its *guna* such as *Ruksha* and *Laghu* does the *Lekhana karma*. It also does the *shodhana*of*strotasa* as it is *Kaphaghna, Kledaghna*.

Ushnavirya helps to do the *Pachana*of-*Vrana*.

Table no 7 - Comparativeaction of Nystatin Suspension and *DarvyadiChurna*

Nystatin Suspension	*DarvyadiChurna + Madhu*
Methylparaben - has an antifungal action also act as a preservetive. **Saccharin- act as an artificial sweetner** **Sodium carboxymethyl cellulose – it has dissolution and a disintegration property thus improves bioavailability of formulation.** **Side effects: nausea, vomiting.**	*DarvyadiChurna - tikta*and*kashayarasapradhanata*of*Darvyadichurna*- helpsto*doshaman*of*pitta*and*kapha*, also it has*vranaropakatendency*, and maintain*rukshata*, so it heals the *vrana* (ulcer) to heal in*Mukhapaka.* *Madhu-madhu*is*raktaprasadaka*, *vranropaka*and also its*kashay-madhurrasa*has a*sandhankar*activity so it causes healing of ulcer. Side effects: Not seen

Thus *Darvyadichurna* shows the action of *Pitta–Kapha Shamana, Rakta-prasadana*, which is required to cure *Mukhapaka* (oral thrush). *Darvyadichurna* reduces the *Tikshna* and *Ushnagunas of Pitta*and at the same time because of this *guna* also pacifies the *Kapha Dosha*. So *Darvyadichurna* is completely balanced from the point of view of all*Doshas*which are responsible for the disease *Mukhapaka*. Because of its *raktaprasadanakarma* it reduces *raktajadushti* so it plays important roll in doing *sampraptibhanga* in *Mukhapaka*. This type of treatment is called as *Dosha-pratyanika Chikitsa* and after this type of treatment recurrence is also least observed.

CONCLUSION

DarvyadiChurna is significantly effective in *Mukhapaka* (oral thrush) and is resolved faster without any complication.Sign and symptoms of *Mukhapaka* i.e. –Site of lesion, excessive salivation, and difficulties in breast feeding in babies were also cured well in trial group.. Comparatively Nystatin Suspension is much more effective than the *Darvyadi Churna*in *Mukhapaka*. *Mukhapaka* is more common

in baby's borned through vaginal deliveries than baby's borned through caesarean section. *Mukhapaka* (oral thrush) is more common in age beolow 3 months of age and both the gender. The results found with local application *Darvyadichurna*with*madhu* are encouraging and can be used routinely in everyday practice for faster and safe recovery. Contains of the *DarvyadiChurna* are easily available and cheap. So instead of the other drugs, Physician can use this drug for *Mukhapaka* in new born babies.

Further study can be conducted for cellular level action of *Darvyadi Churna* with *Madhu*.

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