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RESEARCH ARTICLE

A CLINICAL STUDY OF LODHRA KALKA PAAN WITH NYAGRODH TWAK KASHAYA AND PANCHAVALKALADI VARTI IN SHWETA PRADARA (W.S.R TO LEUCORRHOEA)

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Abstract

Shwetapradara or Leucorrhoea is a common symptom of genital tract infection in women. The World Health Organization estimated that there are 333 million new cases of curable Vulvo-vaginal infections (VVI) per year. Physiological excess of vaginal discharge does not require any treatment. But the pathological conditions which necessitate treatment are those involving many infections due to Candida, Trichomonas, Gram negative, Gram positive etc. organisms. For the treatment of Shwetapradara many Kashaya drugs are available in classics. From such recipes, Lodhra Kalka Paan with Nyagrodh Twak Kashaya and Panchvalkaladi Varti has been selected in one group and in other group Panchvalkaladi Varti is selected. Lodhra Kalka Paan with Nyagrodh Twak Kashaya and Panchavalkaldi Varti had shown statistically highly significant result on Yonigata symptoms i.e. Yoni Kandu, Yoni Dargandhya, Yoni Vedana, Yoni Pichchhilata and Yoni Daha, associated symptoms like Katishoola, Udarashoola, Mutradaha & gynaecological complains i.e. Vaginitis, Cervicitis, Vulvitis & in relieving pus cells, fungal hyphae and Gram-ve organism but on basis of percentage relief and inter group comparison better response was observed in trial group 'A' receiving Lodhra Kalka Paan with Nyagrodh Twak Kashaya and Panchavalkaldi Varti. The overall effect of the therapy on 106 patients of Shwetapradara in both groups was evaluated. 86.20% of patients in the Group A and 68.75% of patients in Group B were improved completely. 10.34% of patients in Group A and, 16.66% of patients in Group B were markedly improved. While only 14.58% patients were improved in Group B.

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Introduction:-

Leucorrhoea, the abnormal vaginal discharge is quite frequently met in day-to-day gynaecological practice. Vaginal discharge was one of the commonest symptoms reported by women in India.^{1, 2, 3} The World Health Organization estimated that there are 333 million new cases of curable Vulvo-vaginal infections (VVI) per year. A study in India has shown that the prevalence of reproductive tract infections was 37.0% based on symptoms and 36.7% by laboratory investigations, including 31% Candidiasis, 3% Gonorrhoea, 2% Trichomoniasis and 45% Bacterial vaginosis.⁴ Leucorrhoea is a white discharge from the vagina. Normally, vaginal discharge occurs in regular variations of amount and consistency during the course of the menstrual cycle. A greater than usual amount is normal in pregnancy, and a decrease is to be expected after delivery, during lactation, and after menopause.⁵ It may be physiological or pathological. Physiological excess of vaginal discharge does not require any treatment. But the pathological conditions which necessitate treatment are those involving many infections due to *Candida*, *Trichomonas*, Gram negative, Gram positive etc. organisms. Although leucorrhoea neither causes mortality nor morbidity in susceptible women, but this complaint is liable to cause much mental stress, problem of sexual anxiety and even sometimes fear of carcinoma or failure to conceive. Apart from this, it also causes local inconvenience to the patient. In *Ayurvedic* literature, regarding the *Shwetapradara*, there is no separate chapter allotted in *Brihatrayee*. Commentator *Chakrapani* has explained the word *Pandura- Asrigdara* as *Shwetapradara* in his commentary.⁶

पाण्डुरप्रदेइतिश्चेत्प्रदरे|..... Cha. Chi. 30/116, Chakra. - Tika

There are many other diseases in which *Shwetapradara* is described as a symptom like *ParisrutaJataharini*, *AsthiSrava*, *Somaroga*, *Kaphaja Asrigdara* and *Yonivyapad* like *Shleshmala*, *Sannipatiki*, *Acharana*, *Atyananda*, *Upapluta*, *Prasramsinee*, and *Phalinee*.

Leucorrhoea is a common symptom of genital tract infection in women. To identify its source can be challenging, because a large number of pathogens cause vaginal and cervical infections and several infections may co-exist.⁷ So, in present clinical study women those having mucopurulent discharge and pathogens like *Trichomonas vaginalis* and *Candida* in wet vaginal smear have been selected. Whenever women suffer from certain pathological conditions their effective treatment is very essential. For *Chikitsa* of *Shwetapradara* *Acharya Charaka* has mentioned to use *Madhuyukta Varti* of *Kashaya Rasa Dravyas*.⁸ *Kashaya Rasa* by virtue of its *Guna* restrains *Srava*. *Acharya Charaka* has mentioned *Kashaya Rasa* as having pharmacological properties like *Stambhana* and *Kaphanashaka*.⁹ So, in this way *Kashaya Rasa* impedes *Srava*. For the treatment of *Shwetapradara* many *Kashaya* drugs are available in classics. From such recipes, *LODHRA KALKA PAAN* with *NYAGRODH TWAK KASHAYA* and *PANCHVALKALADI VARTI* has been selected in one group and in other group *PANCHVALKALADI VARTI* is selected.¹⁰ The present study is aimed to find out a method of treatment, which will impart a permanent, easy, effective cure and is with no or minimal side effect, which can be easily administered and accepted by the patient.

Materials And Method:-

Aims and Objectives:

The present study was planned with the following aims and objectives:

1. To study the detailed etiopathogenesis of the disease *Shwetapradara* according to *Ayurvedic* and modern science.
2. To evaluate & compare the efficacy of the selected drugs on *Shwetapradara* (leucorrhoea).
3. To study the complications, if any during the treatment.

Patients:

For the clinical study, Patients were selected from the O.P.D. of the Department of Stree Roga & Prasooti Tantra Major S.D.Singh P.G Ayurvedic Medical College. Patients fulfilling the criteria for selection were integrated into the study irrespective of caste, religion etc. A detailed history was filled up in specially prepared proforma on Ayurvedic guidelines.

The Drugs:

The raw drugs for *Lodhratwak Kalka* and *Nyagrodh Kashaya* and *Panchavalkaldi Varti* were obtained from Pharmacy of Major S.D Singh P.G. Ayurveda Medical college.

Criteria for selection of Drugs:**Selection of Drugs:**

Panchavalkaldi Varti is a Yoga which was used for *Shwetapradara* due to its *Stambhana*, *Krimighna*, *Kandudhna*, *Vranashodhana*, *Vranaropana*, *Putihara* etc. properties.

In present study two compound formulations of *Lodhra Twak Kalaka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* in different form has been selected.

1. For Group A: Trial Group: *Lodhra TwakKalka*, *Nyagrodh Kashaya*. Dose of *Lodhra Kalka* was 10gm B.D and *Nyagrodh Kashaya* was 40 ml B.D for 45days and *Panchavalkaldi Varti* for 6 days.
2. For Group B: *Panchavalkaldi Varti* was given for six days

Criteria for selection of patient**Inclusion criteria of patient**

1. Only married women were taken for the study.
2. Age between 20 - 45 years
3. The patients having clinical signs & symptoms of *Shwetapradara* (Leucorrhoea). With positive wet smear test

Exclusion criteria of patient

1. Unmarried women were excluded.
2. Patient below 20 years and above 45 years
3. Pregnant women
4. Patients suffering from Tuberculosis, Sexually Transmitted Diseases like VDRL, HIV, Gonorrhoea, etc. and Genital malignancy
5. Congenital and any other pathologies of reproductive tract were excluded.

Criteria for diagnosis:

Patients were selected on the basis of wet vaginal smear.

If any one of *Trichomonas Vaginalis* &/or *Fungal Hyphae* &/or *pus cells* was present in the wet vaginal smear, then those patients were registered.

General investigations:**Hematological:**

Routine Hb%, T.L.C., D.L.C. & ESR were carried out in all the patients before & after treatment.

Biochemical test:

1. S. VDRL (Venereal Disease Research Laboratory) was carried out in all the patients before starting the course of treatment.
2. S.HIV (Human Immunodeficiency Virus) was done if clinical correlation was found.
3. R.B.S. (Random Blood Sugar), F.B.S. (Fasting Blood Sugar) & PP2BS (postprandial 2 blood Sugar) was carried out if required.

Urine:

Urine Routine and Microscopic examination was carried out in all the patients before & after treatment.

Specific investigations:

1. Vaginal wet smear and vaginal pH test was carried in all the patients before & after treatment.
2. Vaginal swab culture was carried if required.
3. Ultrasonography for uterine and adnexal study was carried if required.

Method of Research:

1. The method adopted in present study is open randomized clinical trial. The study had a due clearance from the Institutional Ethics Committee.
2. Total 120 patients were registered and categorized into Group A& B in present clinical study.

Informed consent:

The purpose of the study, nature of the study drugs, the procedures to be carried out and the potential risks and benefits were explained to the patients in detail in nontechnical terms and trilingual. Thereafter their written consent was taken before starting the procedure.

Treatment protocol:

Lodhra Twak Kalka and *Nyagrodh Kashaya* were evaluated for their efficacy in patients suffering from *Shwetapradara*. Assessment was done on the basis of a specially designed proforma for that purpose. The observations and results from the clinical study were analyzed statistically to evaluate the significance of the curative properties of the therapies.

Method of administration of Yoni Varti:

Patient was advised to empty the bladder then asked to lie on her back with thighs flexed and *Yoni Varti* was inserted deep in vagina (Posterior Fornix).

Advice:

1. To avoid intercourse during the course of treatment.
2. To avoid spicy, fried, bakery items and fermented items and over eating.
3. To avoid mental stress.
4. To take green leafy vegetables, simple food and milk.

Subjective criteria:

1. The improvement in the patient was assessed mainly on the basis of relief in the signs and symptoms of the disease.
2. To assess the effect of therapy, all the signs and symptoms were given scoring, depending upon their severity.
3. A special scoring pattern was adopted for the sign & symptoms as follows:

Scoring pattern for sign & symptom

Gradation on Yonigata Lakshana	
Yonitah Srava (White discharge per vagina)	
No c/o discharge	0
Slight discharge	1
Occasional discharge, Only vulval moistness	2
Moderate discharge	
Staining of undergarments but area of staining less than 10 cm square	3
Heavy discharge	
Staining area more than 10-20 cm square or patient needs to use pad	
Smell	
Non-offensive	0
Foul smell is felt only while performing p/s	1
Foul smell felt from a short distance	2
The observer is unable to stand near the patient.	3
Consistency	
No discharge	0
Thin transparent watery discharge, flows on speculum easily	1
Discharge flows on speculum blade but not as watery flow	2
Static and does not flow on speculum.	3
Yoni Kandu (Itching vulva)	
No itching	0
Occasional	1
Mild, feeling of irritability, No need of medicine	2
Moderate	
Disturbs daily routine, Need of medicine and relief after medicine	3
Increases after specific time (Menstruation, Micturition)	
Constant	

Severe, affects routine activity, No relief after taking medicine	
Yoni Daha	
No itching	0
Occasional	1
Mild, feeling of burning sensation, No need of medicine	
Moderate	2
Disturbs daily routine, Need of medicine and relief after medicine	
Increases after specific time (Menstruation, Micturition)	
Constant	
Severe, affects routine activity, No relief after taking medicine	
Yoni Vedana(pain in vagina)	
No pain	0
Occasional	1
Feeling of pain only during movement. only but no pain during rest	
Moderate pain	2
Feeling of pain even during rest but relieved after rest	
Severe pain	3
Continuous feeling of pain, radiating & not relieved by rest	
Gradation on associated symptom	
Katishoola (Low backache)	
No pain	0
Occasional	1
Only feeling of discomfort	
Mild pain	2
At special time of menses, with excessive work load, intercourse.	
No interference with daily routine	
Moderate pain	3
Continuous, No relief after taking medicine,	
Interference with daily routine	
Severe pain	4
Tivra Shoola, No relief after taking medicine	
Interference with daily routine	
UdaraShoola(Pelvic pain)	
No pain	0
Occasional or mild	1
Moderate	2
Severe Shoola	3
Mutradaha(Burning micturition)	
Absent	0
Occasional	1
Moderate	2
Severe	3
Patient wants to avoid micturition.	
Gradation on gynaecological examination finding	
Local tenderness during examination	
Absent	0
Only with compression	1
With deep compression	2
Severe (by touch)	3
Patient resists during gynaecological examination	
Vulvitis	
Absent	0
Vulva is not red	

Mild	1
Vulva slightly red	
Moderate	2
Vulva red	
Severe	3
Vulva deeply red	
Vaginitis	
Absent	0
Vagina pink	
Mild	1
Vagina slightly red	
Moderate	2
Vagina red	
Severe	3
Vagina deeply red	
Cervicitis	
Absent	0
Cervix pink	
Mild	1
Cervix slightly red	
Moderate	2
Cervix red	
Severe	3
Cervix deeply red	

Objective criteria:

1. Assessment of the therapy was also carried out by comparing the B.T. and A.T., values of Routine Haematological, Urine Routine and Microscopic investigations of wet vaginal smear.
2. Scoring pattern of wet vaginal smear was not available in any text book.

Wet vaginal smear reading pattern:

Wet Vaginal smear reading pattern was not available in any textbook. However, suitable scoring pattern was prepared to assess the effect of therapy as follows:

Scoring pattern for wet vaginal smear reading

Based on cellular (Pus cell / Epithelial cell)	
0-5 pus/hpf	0
6-25 pus/hpf	1
26-50 pus/hpf	2
51-100 pus/hpf	3
□ 100 pus/hpf	4
Based on fungal hyphae	
Occasional	0
Few	1
Many	2
Plenty	3
Based on Trichomonasvaginalis organism	
No organism seen/field	0
1-5 organisms seen/field	1
5-10 organisms seen/field	2
More than 10 organisms seen/field	3

Criteria for the assessment of overall effect of the therapy:

The total effect of treatment was assessed in the terms of cured, moderate improvement, mild improvement and no change.

Assessment criteria of overall effect of therapy:

No change	□ 25% changes in the signs and symptoms
Mild improvement	26-50% relief in the signs and symptoms
Moderate improvement	51-75% relief in the signs and symptoms
Complete cure	76-100% relief in the signs and symptoms

Statistical Estimation of results:

The obtained data was analyzed for statically significance by using paired and unpaired student “t” test. The level of “P” between 0.05 to 0.01, and $P < 0.001$ was considered as statistically significant and highly significant respectively. The level of significance was noted and interpreted accordingly.

Follow up:

After completion of course patients were advised to report every 15 days for follow up study, which was carried out for 1 month. During the follow up study, further recurrence in the signs & symptoms were recorded.

Discussion And Result:-**1. Effect of therapy on Yonigata Lakshanas:**

Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti relieves *YoniSrava* in 93.15% patients and *Panchavalkaldi Varti* provided 88.26 % relief in *YoniSrava*. The results observed in both groups were highly significant statistically (< 0.001). The drug, *Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti* provided relief in others *Yonigata* features of *Shwetapradara* like *Srava consistency* (95.77%), *Yoni Kandu*(93.92%), *Yoni Daurgandhya*(99.16%), *YoniDaha*(100%) and *Yoni Vedana*(100%). The results observed were highly significant statistically (< 0.001). All the other *Yonigata* features of *Shwetapradara* relieved in the group treated with *Panchavalkaldi Varti* also i.e. *Srava consistency* (78.49%), *Yoni Kandu*(73.4%), *Yoni Daurgandhya*(77.33%), *Yoni Daha*(66.20%) and *Yoni Vedana*(60.01%). The results were also highly significant statistically (< 0.001). It may be due to *Kashaya & Tikta Rasa* of *Panchavalkaldi Varti* and *Kandughna, Krimighna and Kapha-Kledahara* properties. But the relief obtained in *Yoni Kandu* in *Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti* treated group is more than *Panchavalkaldi Varti* treated group. This data shows that *Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti* is more effective on *Yoni Kandu* than *Panchavalkaldi Varti*. *Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti* provides relief on associated symptoms, e.g. in *Katishoola* 65.30%, *Udarshoola* 67.73% and *Mutrada* 68.11%. The results observed were highly significant statistically (< 0.001). Among the patients treated with *Panchavalkaldi Varti* relief on associated symptoms, e.g., in *Katishoola* 66.05%, *Udarshoola* 63.45% and *Mutrada* 59.02% was observed. These results obtained were statistically highly significant ($P < 0.001$). Relief in all *Yonigata* and associated symptoms is statistically highly significant due to *Tridoshahara* and *Rasayana* properties of the drugs but percentage of relief on associated symptoms is not as much as in *Yonigata Lakshanas*. It may be due to the fact that in both groups only local therapy was used.

2. The effect of therapy on Local Pathology:

Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti provided highly significant results (< 0.001) in vaginitis, cervicitis and local tenderness during examination while 100% relief was found in vulvitis. *Panchavalkaldi Varti* also provided highly significant results (< 0.001) in vulvitis, vaginitis, cervicitis and local tenderness during examination. It may be due to anti-inflammatory property of *Panchavalkala* drugs.

3. Effect on Wet vaginal smear and vaginal pH:

Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti provided 100% relief in *Trichomonas vaginalis*. The results observed in *Panchavalkaldi Varti* treated group were statistically highly significant (< 0.001) in *Trichomonas vaginalis*. In *Lodhratwak Kalka, Nyagrodh Kashaya and Panchavalkaldi Varti* treated group, 96.67% relief was found in fungal hyphae and 93.39% relief was found in pus cells. The results observed were highly significant statistically (< 0.001). *Panchavalkaldi Varti* group also observed relief in fungal hyphae 78.49% and in pus cells 77.33%. These results obtained were highly significant

statistically (<0.001). It may be because *Panchavalkala* has anti-fungal, antibacterial and antiviral properties. And especially *Panchavalkala* has inhibitory action on a wide spectrum of micro-organisms, including *Candida albicans*, the multidrug-resistant *Staphylococcus aureus* and urinary tract *Escherichia coli*.¹¹ On Vaginal pH insignificant result was found in both the groups. It may be because in majority of patients fungal infection was present and in *Candida* infection vaginal pH remains within normal limits.¹²

4. Effect on laboratory parameters:

Mostly normal values were found in all pathological investigations that were not changed markedly after treatment. Statistically insignificant results were observed in both groups on haematological investigations like Hb%, TLC, DC and ESR & urine routine investigations like urine albumin, epithelium cells, RBC, calcium oxalate and granuloma cast. But in urine pus cell significant result ($p<0.01$) was found in *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* treated group while insignificant result was observed in *Panchavalkaldi Varti* ($P>0.05$) treated group.

5. Comparative efficacy of both groups on Yonigata Lakshanas:

When the comparative effect of *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* group (Group A) with that of *Panchavalkaldi Varti* group (Group B) was done by applying the unpaired student "t" test, it was shown that slightly better relief was found in Group A to relieve the symptoms. The comparative value is statistically significant in some symptoms. *Srava* was better relieved by *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* on the basis of percentage of relief i.e. 93.15% than by *Panchavalkaldi Varti* i.e. 88.26%.

This comparative data is statistically highly significant ($p<0.001$). The comparative *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* showed better percentage of relief in *Yoni Kandu* i.e. 94.92% when compared with the *Panchavalkaldi Varti* group i.e. 73.4% to relieve *Yoni Kandu*. This comparative data is statistically highly significant ($p<0.001$). While better percentage of relief was found in Group A in *Yoni Daurgandhya* 99.16%, as compared to Group B i.e. 98.00%. This value is not statistically significant. On relieving *Srava* consistency, Group A showed better results i.e. 96.77%, than that of Group B which is 88.70%. This value was not statistically significant. Both *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* and *Panchavalkaldi Varti* showed 100% relief in *Yoni Daha*. This data is not statistically significant. Also better percentage of relief was found in Group A in relieving *Yoni Vedana* (100%), when compared with the Group B i.e. 60.01%. This value is not statistically supportive.

Table 1:- Comparative Effect of *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* on *Yonigata Lakshana*.

<i>Yonitah Lakshana</i>	df	% of relief		Mean difference	't'	P
		Group A	Group B			
<i>Yonitah Srava</i>	104	93.15	78.49	0.470	5.194	<0.001
<i>Yoni Daurgandhya</i>	104	99.16	77.33	-0.00718	-0.094	>0.05
<i>Consistency</i>	104	96.77	78.70	-0.0560	-0.67	>0.05
<i>Yoni Kandu</i>	103	94.92	73.4	0.357	4.003	<0.001
<i>Yoni Daha</i>	14	100	66.20	-0.429	-2.430	<0.05
<i>Yoni Vedana</i>	27	100	60.01	-0.309	-1.868	>0.05

6. Comparative Effect on associated symptoms:

Analysis of associated features after the comparison of *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* group (Group A) with *Panchavalkaldi Varti* group (Group B) reveals that the Group A showed better results in relieving *Katishoola*. But the comparative value is not statistically significant. *Lodhratwak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* showed slightly better result on relieving *Udarashoola*, but the comparative value is not statistically significant. While *Panchavalkaldi Varti* showed better results in relieving *Mutradaha*. This comparative value is also not statistically significant.

Table 2:- Comparative Effect of *Lodhra Twak Kalka*, *Nyagrodh Kashaya* and *Panchavalkaldi Varti* on associated symptoms.

Associated symptoms	Df	% of relief		Mean difference	T	P
		Group A	Group B			
<i>Katishoola</i>	92	72.02	57.78	-0.0118	-0.123	>0.05
<i>Udarashoola</i>	51	78.05	69.59	0.0765	0.516	>0.05

MutraDaha	32	65.25	62.42	-0.0111	-0.0492	>0.05
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7. Comparative Effect on gynecological examination:

Lodhratwak Kalka, Nyagrodh Kashaya and *Panchavalkaldi Varti* group showed better percentage of relief while comparing with the *Panchavalkaldi Varti* group to relieve vaginitis. This data was statistically highly significant. Better percentage of relief also shown in *Lodhratwak Kalka, Nyagrodh Kashaya* and *Panchavalkaldi Varti* group in relieving local tenderness during examination. This value was also statistically significant. While *Lodhratwak Kalka, Nyagrodh Kashaya* and *Panchavalkaldi Varti* group showed better results in relieving vulvitis and cervicitis. But the comparative value was not statistically significant.

Table 3:- Comparative Effect of *Lodhratwak Kalka, Nyagrodh Kashaya Pana & Panchavalkaldi Varti* on gynaecological examination finding:

Gynaecological Examination	df	% of relief		T	P
		Group A	Group B		
Vulvitis	24	100	93.00	-0.835	>0.05
Vaginitis	84	92.48	89.39	-31.435	<0.001
Cervicitis	82	100	92.22	-2.195	>0.05
Local tenderness	79	100	97.13	-1.387	<0.05

8. Comparative effect on vaginal investigations:

Lodhratwak Kalka, Nyagrodh Kashaya showed better results on relieving *pus cells*, in comparison i.e. 93.39% to *Panchavalkaldi Varti* group which is 77.33%. This data was statistically significant. *Lodhratwak Kalka, Nyagrodh Kashaya* and *Panchavalkaldi Varti* showed equivalent effect to alleviate *Trichomonas vaginalis*. The comparative value was not statistically significant. Better percentage of relief i.e. 96.67% was showed in *Lodhratwak Kalka, Nyagrodh Kashaya* treated group as compared to the *Panchavalkaldi Varti* group i.e. 78.49% to relieve the fungal hyphae in wet smear. This comparative data was not statistically significant. On vaginal pH, *Lodhratwak Kalka, Nyagrodh Kashaya* and *Panchavalkaldi Varti* showed 18.75% and 18.14% relief respectively. This data was not statistically significant.

Table 4:- Comparative Effect of *Lodhratwak Kalka, Nyagrodh Kashaya Pana & Panchavalkaldi Varti & Panchavalkaldi Varti* on wet vaginal smear finding:

Wet vaginal smear	df	% of relief		T	P
		Group A	Group B		
<i>Trichomonas Vaginalis</i>	02	100	100	1.258	>0.05
Fungal Hyphae	76	95.14	78.49	0.757	>0.05
Pus cells	104	92.24	77.33	2.235	<0.01
Vaginal pH	104	17.25	16.14	-0.135	>0.05

9. Comparative effect on laboratory parameters:

Lodhratwak Kalka, Nyagrodh Kashaya observed better percentage of improvement in Hb% and in DC - Lymphocyte and Monocyte. While *Panchavalkaldi Varti* showed better percentage of improvement in TLC, ESR and in DC- Neutrophils and Monocyte. But the data was not statically significant. On relieving urine *pus cell*, *Lodhratwak Kalka, Nyagrodh Kashaya* showed better results i.e. on comparison i.e. 59.81% than that of *Panchavalkaldi Varti* group which is -77.33%. This data is not statistically significant.

Table 5:- Comparative effect of *Lodhratwak Kalka, Nyagrodh Kashaya & Panchavalkaldi Varti* and *Panchavalkaldi Varti* on laboratory parameters.

laboratory parameters	df	% of relief		T	P
		Group A	Group B		
Hb%	102	0.5	0.03	0.464	>0.05
TLC	102	-1.14	-225.22	-1.322	>0.05
DC-N	102	-2.12	-3.456	-1.717	>0.05
L	102	4.57	1.550	1.625	>0.05
E	102	2.12	-0.0121	0.0511	>0.05
M	102	1.12	0.111	0.0812	>0.05
ESR	102	4.31	-0.634	-0.350	>0.05
Urine pus cell	95	54.61	-15.03	1.467	>0.05

10. Overall effect of therapy:

The result of the present study was assessed as complete remission, markedly improved, Improved and Unchanged. The overall effect of the therapy on 106 patients of *Shwetapradara* in both groups has been evaluated. 86.20% of patients in the Group A and 68.75% of patients in Group B were remission completely. 10.34% of patients in Group A and, 16.66% of patients in Group B were markedly improved. While only 14.58% patient improved in Group B.

Table 6:- Overall Effect of Therapies on 106 patients of *Shwetapradara*.

Status	Lodhra TwakKalka, Nyagrodh Kashayapana and Panchavalkaldi Varti		Panchavalkaldi Varti	
	No. of patients	%	No. of patients	%
Complete remission	50	86.20	33	68.75
Markedly Improved	06	10.34	8	16.66
Improved	02	3.44	07	14.58
Unchanged	00	00	00	00

11. Clinical observations of patients after follow-up:

After completion of the clinical trial of seven days, the patients were followed up for further one month at regular interval of 15 days. They were evaluated for recurrence or aggravation of symptoms. In follow up study no patient had complaint of recurrence of symptoms within 1 month. But after 6 months of follow up, 2 patients in Group A & 4 patients in Group B had complained of recurrence. It may be due to the infected partner or other causes.

Probable mode of action of drug:

At Rasa-Guna-Virya-Vipaka-Prabhava level:

Cure of disease happens due to *SampraptiVighatana*. This can be explained on the basis of *Rasa, Guna, Virya, Vipaka* and *Prabhava* of drugs. *Lodhra* has *Kashaya* (85.71%), *Tikta*(42.86%), *Amla*(42.86%), *Madhura*(42.86%) and *Katu Rasa* (28.57%); *Laghu*(57.14%), *Ruksha*(42.86%), *Sheeta*(28.57%), *Guru* (14.28%) and *SnigdhaGuna*(14.28%); *Sheeta*(42.86%) and *UshnaVirya*(42.86%); *Madhura*(42.86%) and *KatuVipaka*(42.86%) and *Tridosahara*(71.42%) *Kapha-Pittahara*(14.28%) properties by which it breaks the *Samprapti*. *Lodhra* possesses mainly *Kashaya Rasa*. *Acharya Charaka* has mentioned that *Kashaya Rasa* is having pharmacological properties like *Samshmana, Soshana, Sangrahi, Stambhana* and *Kaphanashaka*. It has also quality of drying *Kleda*. So, by virtue of *Kashaya Rasa* it stops *Srava*. *Kashaya Rasa* is mainly formed by conjugation of *Vayu* and *PrithviMahabhuta*. *Vayu* is *Ruksha* in quality¹³ and dries up the excessive fluids present in the tissues while *Prithvi* by virtue of *Kathina* and *SthiraGuna* which are opposite to *Drava* and *Sara Guna* reduces the *Srava*. So, *Kashaya Rasa* by virtue of its *Gun* restrains *Srava*.¹⁴ *Tikta Rasa* is a combination of *Vayu* and *AkashaMahabhuta*.¹⁵ These two *Mahabhuta* is are having qualities opposite to *Kapha*. While *Amla Rasa* is possessing *Laghu* and quash the *Kapha*. Some of the ingredients of *Lodhra* possess *Madhura Rasa* which is *Vata* and *Pitta Shamaka* and also has *Prinana, Jeevana* property etc.¹⁶ Hence, *Tikta, Amla* and *Madhura Rasa* alleviate *Srava*. The third dominant *Rasa* is *Katu Rasa* in *Nyogradhkashaya Yoga*. This *Rasa* is formed by *Vayu* and *Agni Mahabhuta*, having qualities opposite to *Kapha* (*Prithvi* & thus, lessens *Srava*. *Katu Rasa* also has *Shothaghna, Kandughna* and *Abhishyanda-Kleda-SnehaUpahanti* properties. By these properties it eases *Srava* as well as reduces *Shotha*. *Tikta* and *Katu Rasa* have *Krimighna* property which directly inhibits the growth of *krimi* finally diminishes *Srava*. Most of the ingredients of *Nyagrodhadi Kashaya* possess *Laghu* and *RukshaGuna*. By the virtue of this property this may pacify vitiated *Kapha* and *Kleda* and supports the function of the other *Rasas*. *RukshaGuna* also restrains *Srava* by asset of its *Stambhana* action.¹⁷ *Snigdha* and *GuruGuna* is predominant in some ingredients. So, these ingredients alleviate vitiated *Vayu* while *SheetaGuna* alleviates vitiated *Pitta*. Thus, ultimately help to stop secretion. *Madhu* has *YogavahiGuna* so, it may act quickly even in smaller dose.¹⁸ The equal ingredients of *Lodhra* are having *Sheeta&UshnaVirya*. *SheetaVirya* drugs normalize the condition of vitiated *Pitta*. And the *UshnaVirya* drug specify vitiated *Vata* and *Kapha*. By virtue of these qualities *NyagrodhadiKashaya* may alleviate the vitiated *Vata, Pitta* and *Kapha* which eradicates *Shwetapradara*. *SheetaVirya* drugs also act in *Srotasa* and cause *Stambhana*. In this way trial drug restrains *Srava* by *Stambhana* action.

Action at Doshika level:

Shwetapradara is *KaphaVata* predominant *TridoshajaVyadhi* and *NyagrodhadiKashaya* is *Pitta-Kaphanashaka* and the rest are *Tridoshanashaka*. Thus, the trial drugs alleviate the *Tridosha* by their *Tridoshahara* properties. The *Madhura Rasa* (42.86%), *Amla Rasa* (42.86%), *Guru Guna* (14.28%) *SnigdhaGuna*(14.28%), *UshnaVirya*(42.86%) and *MadhuraVipaka*(42.86%), present in the *NyagrodhadiKashaya* pacify the *VataDosh.Kashaya Rasa* (85.71%), *Madhura Rasa* (42.86%) and *Tikta Rasa* (42.86%), *RukshaGuna* (42.86%), *SheetaGuna* (28.57%), *SheetaVirya* (42.86%) and *MadhuraVipaka*(42.86%) pacify the *Pitta Dosh*. *Katu Rasa* (28.57%), *Tikta Rasa* (42.86%), *Kashaya Rasa* (85.71%), *Laghu Guna* (57.14%), *Ruksha Guna* (42.86%), *UshnaVirya* (42.86%) and *KatuVipaka* (42.86%) pacify the *KaphaDosh*.

Action as per modern pharmacological activity:

The modern technology has proved that *NyagrodhadiKashaya* drugs e.g., *Nyagrodh* has antiinflammatory, antimicrobial, anti-bacterial and immunomodulatory pharmacological properties by which it kill the causative microorganism, reduces inflammation and also supports the vaginal defence mechanism. *Panchavalkala* destroys micro-organisms, repairs damaged tissue and also increases immunity by its rejuvenative nature and exhibits antiviral, antibacterial, anti-fungal, immuno-modulatory and antioxidant properties. Honey has also anti-bacterialproperty. It kills bacteria by plasmolysis & no organism can successfully multiply to significant amounts in honey. Thus, it inhibits the micro-organism growth and break the *Samprapti*. *Sphatika* has styptic and astringent Properties by which it restrains *Srava*. Thus, *lodhrakalka* and *nyogradhtwak kashaya Yoga* can cured *Shwetapradara*.

Conclusion:-

1. *Chakrapanidatta* & *Vrindamadhava* first quoted the word *Shwetapradar*. It is a *Kapha- Vata Pradhana Tridoshaja Vyadhi*.
2. Concerning pathogenesis of disease, it can be concluded that due to faulty diet & life style there is imbalance of doshas in the body, & when aggravated *Kapha dosha* consequently reaches *yon*i (vagina) through vitiated *Vayu* and combine with *Pitta* then white coloured, thin or thick, foul smelling fluid discharge from the vagina called as *Shwetapradara* (abnormal vaginal discharge).
3. The formulation *Lodhra Kalka Paan* with *Nyagrodh Twak Kashaya* and *Panchavalkaldi Varti* was selected because it has *Tridoshashamaka* especially *KaphavataShamaka*, *Krimighna*, *Vranashodhana*, *Ropana*, *Putihara*, *Kandughna* properties as well as antimicrobial, antifungal effect which leads to *Samprapti Vighatana*. Successful control, cure & prevent recurrence of *Shwetapradara*.
4. *Lodhra Kalka Paan* with *Nyagrodh Twak Kashaya* and *Panchavalkaldi Varti* had shown statistically highly significant result on *Yonigata* symptoms i.e. *Yoni Kandu*, *Yoni Daurgandhya*, *Yoni Vedana*, *Yoni Pichchhilata* and *Yoni Daha*, associated symptoms like *Katishoola*, *Udarashoola*, *Mutradaha* & gynaecological complains i.e. *Vaginitis*, *Cervicitis*, *Vulvitis* & in relieving pus cells, fungal hyphae and Gram-ve organism but on basis of percentage relief and inter group comparison better response was observed in trial group 'A' receiving *Lodhra Kalka Paan* with *Nyagrodh Twak Kashaya* and *Panchavalkaldi Varti*.
5. The study is overall concluded that the *Lodhra Kalka Paan* with *Nyagrodh Twak Kashaya* and *Panchavalkaldi Varti* is highly effective in reducing subjective & objective variables of *Shwetapradara* (abnormal vaginal discharge), & will also help in deriving new conclusion and axioms in the syndromic management of vaginal discharge.

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