

A COMPARATIVE STUDY OF 'RAKTASHODHAK GHANA VATI' AND 'MUKHKANTIKARA LEPA' WITH VAMAN KARMA IN THE MANAGEMENT OF YUVANPIDIKA ACNE VULGARIS

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ABSTRACT

Introduction: The face is the index of the mind and the mirror of the body. Yuvanpidika harms beauty of the face so person may suffer with inferiority complex, anxiety, isolation etc. Thus, Yuvanpidika is a painful condition for body as well as for mind too. It affects 85% of teenagers. Due to wide spectrum of disease, much prevalence in the society and lack of effective medicine, the disease is being chosen for the study. **Aims and Objectives:** To Study the 'Raktshodhak Ghana Vati', 'Mukhkantikara lepa' and 'Vaman Karma' in the management of 'Yuvanpidika' W.S.R. to Acne vulgaris. **Methods and Material:** **Group A** – 20 clinically diagnosed and registered patients of 'Yuvanpidika' will be treated by 'Raktshodhak Ghan Vati' & 'Mukhkantikar lepa', 2 tablets two times in a day with lukewarm water, after meal for 45 days. **Group B** – 20 clinically diagnosed and registered patients of 'Yuvanpidika' will be treated with 'Vaman karma' followed by treatment with 'Raktshodhak Ghan Vati' & 'Mukhkantikara lepa', 2 tablets two times in a day with lukewarm water, after meal for 30 days. **(Total -15 + 30 = 45 days)** **Study Design-** Single centre and Open Clinical study. **Results:** In group A Excellent relief was found in 40% of patients, Significant relief in 25%, and Moderate relief was found in 35% of patients. While in group-B, Excellent relief was found in 35% of patients, Significant relief in 15%, Moderate relief in 40%, No relief found in 10% of patients. **Conclusions:** On comparing the effect of two groups it can be concluded that GroupB ('Vaman karma' followed by treatment with 'Raktshodhak Ghana Vati' & 'Mukhkantikara lepa') provided better relief than Group A ('Raktshodhak Ghana Vati' & 'Mukhkantikara lepa') in most of the sign and symptom of the disease at significant level.

KEYWORDS: Yuvanpidika, Acne vulgaris, 'Raktashodhak Ghana Vati' & 'Mukhkantikara Lepa' with Vaman Karma.

INTRODUCTION

The face is the index of the mind and the mirror of the body. Yuvanpidika harms beauty of the face so person may suffer with inferiority complex, anxiety, isolation etc. Thus, Yuvanpidika is a painful condition for body as well as for mind too. It affects 85% of teenagers. Due to wide spectrum of disease, much prevalence in the society and lack of effective medicine, the disease is being chosen for the study.

In Ayurveda, this disease is described as 'Mukhdushika' or 'Yuvan pidika'. According to Ayurveda, the Shalmali Kantikak like eruption on the face due to vitiation of Kapha, Vata and Rakta which are found in adolescents are called 'Mukhdushika'.^[1]

According to the nature of disease, it is essential to work on such drugs which has property of Kapha-Pitta shamak & Raktashodhak can reverse the condition and can be used for long time. The line of treatment described for the disease as

यौवने पिडकास्वेष विषेषाच्छर्दनं हितम् ।
लेपनं च^[2]..(सु. चि. 20/37)

Raktshodhak Ghana Vati and Mukhakantikara lepa (in Charak Samhita described in Varnya Mahakasaya) had been selected as Shamana therapy. Vamana Karma selected as Shodhana therapy.

AIMS AND OBJECTIVES

- Conceptual and clinical studies on **Yuvanpidika** (Acne vulgaris) and its management with time examined methods and Ayurvedic principle.
- Clinical evaluation of the efficacy of '**Raktshodhak Ghana Vati**' & '**Mukhkantikara lepa**' in management of '**Yuvanpidika**'.
- Comparison of efficacy of '**Raktshodhak Ghana Vati**' & '**Mukhkantikara lepa**' and '**Vaman**' in the management of '**Yuvanpidika**'

MATERIALS AND METHODS

Selection of patient: A total 40 patients of Yuvanpidika were randomly selected for the present study, from the Kayachikitsa OPD and IPD of Rajasthan Ayurveda University, Jodhpur. The case selection was random regardless of sex, occupation and socio-economic conditions. Both acute and chronic phase of Yuvanpidika patients were taken for the study.

The main criteria of diagnosis of patients were based on the signs and symptoms of the disease based on the Ayurvedic and modern texts.

- **Study Design-** Single centre and Open Clinical study.
- **Inclusion criteria**
 1. The patients between the age group of 13 to 35 years in either sex presenting with clinical features of Yuvanpidika.
 2. Patients having cardinal features of Yuvanpidika (mukhdushika) as per Ayurvedic & modern literature.

Exclusion criteria

- Following patients will be excluded from clinical trial -
1. Patients of age below 13 years and above 35 years of either sex.
 2. Patients associated with other acute or chronic systemic illness.
 3. Acne due to malignant cases.
 4. Acne associated with other skin disease or febrile conditions.

Grouping- A total 40 clinically diagnosed and registered patients of Yuvanpidika were divided randomly into two groups. Each group had 20 patients.

Group A – 20 clinically diagnosed and registered patients of 'Yuvanpidika' will be treated by 'Raktshodhak Ghana Vati' & 'Mukhkantikara lepa', 2 tablets two times in a day with lukewarm water, after meal for 45 days.

Group B – 20 clinically diagnosed and registered patients of 'Yuvanpidika' will be treated with '**Vaman karma**' followed by treatment with '**Raktshodhak Ghana Vati**' & '**Mukhkantikara lepa**', 2 tablets two times in a day with lukewarm water, after meal for 30 days. (Total -15 + 30 = 45 days).

Trial Drugs

1. Raktshodhak Ghana Vati (Herbal Formulation) -

Contents are Nimba (*Azadirachta indica*) Root, Nimba Leaves, Nimba Fruit, Nimba Flowers, Nimba Bark, Manjistha (*Rubia cordifolia*), Gudduchi (*Tenospora cordifolia*) Dhanyka (*Coriandrum sativum*). All contents were taken in equal quantity.

2. Mukhkantikara lepa (in Charak Samhita described in Varnya Makakasaya)

**चंदनतुङ्गपद्मकोषीरमधुकमंजिष्ठासारिवापयस्यासितालता इति दशेमानि वर्णानि भवन्ति^[3] ।।" (च. सू. 4/8)

3. Vamana Karma is selected for study as Samshodhana therapy.

Both drugs prepared in pharmacy of the institute.

Duration of clinical trial and follow up study

1. 45 days for oral drug.
2. All patients will be followed up 15, 30 & 45th day of treatment.

Criteria for assessment

Subjective parameters

Pidika (presence of Acne)	Kandu (Itching over acne)
0- No Acne. 1- Few area of face. 2- Both side of cheeks and forehead. 3- Both side of cheeks, forehead, trunk.	0- Absent. 1- Occasionally 2- Continuous itching without disturbing sleep. 3- Continuous itching with disturbed sleep.
Daha (Burning sensation)	Srava (Discharge)-
0- No burning. 1- Occasionally. 2- Continuous burning without disturbed sleep. 3- Continuous burning without disturbed sleep.	0- Absent. 1- Occasionally & small quantity. 2- Perfuse discharge in all acne. 3- Continuous discharge in all acne.

Vedana (Pain)

- 0- No pain
- 1- Pain after itching
- 2- Pain during inflammation
- 3- Continuous pain

B) Objective Parameters (Laboratory investigations)

Hb, TLC, DLC, ESR, Urine R/M.

OBSERVATION

Maximum i.e. 47.5% patients were belonged to age group of 23-27 years in the present trial. This is the age for Annavasthita & Vivardhamana stage of Dhatu specially Shukra Dhatu Pradurbhava. As Shukra Dhatu Pradurbhava leads to production of its Mala, so it is obvious to have Pidaka at this age. In the same way sebaceous gland secretion also starts at the age of

adrenarche similarly in female after menarche the incidence of acne increases.

Maximum i.e. 62.5% patients were female as compared to male patients. The first signs of acne vulgaris commonly appear at the time of puberty and its prevalence is similar in both sexes due to hormonal changes. But females are more conscious about their beauty so it may be cause for their more prevalence.

Majority of the patients (95%), belonged Hindu religion; 90% patients were unmarried. Out of which, maximum 55% patients were Student. About 45% patients belong to upper middle class. Max. 45% Patients of Vata-Kaphaja Prakriti .85% patients were of Madhyama Sara, 75% were having Madhyama Samhanan, 70% patients with Madhyama Satmya, 55% patients with Madhyama Satva, 65% patients showed Madhyama Ahara Shakti, 50% patients showed AvaraVyayama shakti, 65% patients showed Madhyama nature of Koshtha, maximum 70% patients were of Samagni.

Maximum patients 60% had no history of addiction; maximum 55% patients were chronic patients. Almost all the patients in the study are exposed to one or more causative factors during their day to day food habits such as, consumption of fried foods, Junk foods, curd, oily food stuffs, milk, spicy food, bakery products etc. These are also observed to be the aggravating diet for the lesions. As such the disease Yuvanapidaka is produced due to vitiation of Kapha, Vata, Rakta and Meda, and above said factors are more Kapha Prakopaka, Medovardhaka, Vata Prakopaka in nature. They ultimately hamper the equilibrium state of Dosha, vitiate the Rakta and lead to development of Yuvanapidaka.

Maximum i.e. 35% patients were Anxious and 30% patients were depressed. The stress causes excess secretion of androgens and subsequently leads to Yuvanapidaka. Aside from scarring, its main effects are psychological, such as reduced self-esteem. Maximum no. of female patients i.e. 56 % had irregular menstrual history. According to Ayurveda, Artava is having dominance of Teja Mahabhuta. This Artava is expelled out from body regularly in the form of menstrual fluid.

When there is disturbance in this normal physiological process produces hormonal disturbance leading to the production of Acne.

Maximum no. of patients i.e. 45% were taking Madhura Rasa. Madhura Rasa produces excessive Kleda (sebum) and Kaphavardhana when taking in Atimatra. 90% patients had cheeks involvement. 70% patients had forehead involvement. 25% patients had upper chest region involvement. Total 40% patients had upper back region involvement. It's because of the maximum number of sebaceous glands found on this site than other body part. Maximum no of 32 patients (80%) had oily skin this shows a direct relation of oily skin and the occurrence of Acne Vulgaris in the patients. Maximum number of patients 30% had more than 15 numbers of lesions. 40% patients had Pidaka size 5mm. 30% patients had pidika size >5mm.

RESULTS OF THERAPEUTIC TRIAL

In the present study 43 patients were registered out of which 40 completed the trial. The pattern of clinical improvement in various subjective and objective parameters were recorded and measured statistically in two groups. All the Results are calculated by using Software: In Stat Graph Pad 3.

Intra Group comparison- For Non-parametric Data **Wilcoxon matched-pairs signed ranks test** was used while for Parametric Data **Paired 't' Test** was used and results are calculated.

Inter Group comparisons- for non-parametric variables, **Mann-Whitney test** was used and for the **parametric data, UN paired t-test** was used and results were calculated.

W= Wilcoxon matched-pairs signed-ranks test was used, in which the level of significance is described as follows:

Extremely significant (E.S.): $p < 0.001$ **Very significant (V.S.):** $p < 0.01$

Significant(S): $p < 0.05$ **Not significant (N.S.):** $p > 0.05$

Table 1: The effect of therapy on subjective parameters in group A (W= Wilcoxon matched-pairs signed-ranks test).

S. No.	Symptoms	Mean		Dif.	% of relief	SD	SE	P	Results
		BT	AT						
	Pidika (Acne)	2.250	0.7500	1.500	66.66	0.6070	0.1357	<0.0001	E.S.
	Kandu (Itching)	1.750	1.450	0.3000	17.14	0.4702	0.1051	0.0313	S.
	Daha (Burning)	1.550	1.350	0.2000	12.90	0.4104	0.09177	0.1250	N.S.
	Srava (Discharge)	1.350	1.050	0.3000	22.22	0.5712	0.1277	0.0625	N.S.
	Vedana (Pain)	1.750	1.400	0.3500	20	0.4894	0.1094	0.0156	S.

Analysis of subjective parameters of group A as per table no 1.

- Statistically extremely significant results ($p < 0.001$) were found in Pidika (66.66%),
- Statistically Significant result ($p < 0.05$) was found in Kandu (17.14%), and Vedana (20%)

- Statistically Insignificant results ($p > 0.05$) were found in Srava (22.22%), and Daha (12.90%).

Table 2: The effect of therapy on objective parameters in group A: (Paired t-test).

S. No	Variables	Mean		Dif.	% of Change	SD	SE	T	P	Results
		BT	AT							
1	Hb	11.375	11.715	-0.3400	-2.99	0.5595	0.1251	2.718	0.0137	S.
2	TLC	7135.0	6070.0	1065.0	14.92	1360.4	304.21	3.501	0.0024	V.S.
3	ESR	39.050	22.500	16.550	42.38	11.596	2.593	6.383	<0.0001	E.S.
4	Eosinophil	6.050	2.550	3.500	57.85	5.754	1.287	2.720	0.0136	S.

Analysis of objective parameters of group A as per table no 2.

- Statistically extremely significant results ($p < 0.001$) were found in ESR 42.38% (percentage of decrease), Statistically very significant results

($p < 0.01$) were found in TLC 14.92% (percentage of decrease)

- Statistically Significant result ($p < 0.05$) was found in Hb 2.99% (percentage of increase) and Eosinophil 57.85% (percentage of decrease)

Table 3: The effect of therapy on subjective parameters in group B: (W= Wilcoxon matched-pairs signed-ranks test).

S. No	Symptoms	Mean		Dif.	% of Change	SD	SE	P	Results
		BT	AT						
	Pidika (Acne)	2.300	1.000	1.300	56.52	0.7327	0.1638	<0.0001	E.S.
	Kandu (Itching)	1.750	1.150	0.6000	34.28	0.7539	0.1686	0.0039	V.S.
	Daha (Burning)	1.900	1.300	0.6000	31.58	0.8208	0.1835	0.0068	V.S.
	Srava (Discharge)	1.550	1.300	0.2500	16.13	0.4443	0.09934	0.0625	N.S.
	Vedana (Pain)	1.900	1.550	0.3500	18.42	0.5871	0.1313	0.0313	S.

Analysis of subjective parameters of group B as per table no. 3.

- Statistically Extremely significant results ($p < 0.001$) were found in Pidika (56.52%),
- Statistically very significant results ($p < 0.01$) were found in Kandu (34.28%), and Daha (31.58%).

- Statistically significant results ($p < 0.05$) were found in Vedana (18.42%).
- Statistically non-significant results ($p > 0.05$) was found in Srava (16.13%).

Table 4: The effect of therapy on objective parameters in group B: (Paired t-test).

S. No.	Variables	Mean		Dif.	% of relief	SD	SE	T	P	Results
		BT	AT							
1	Hb	12.280	12.500	-0.2200	-1.79	0.9844	0.2201	0.9995	0.3301	N.S.
2	TLC	7515.0	6965.0	550.00	7.32	1409.9	315.27	1.745	0.0972	N.S.
3	ESR	39.750	22.050	17.700	44.53	14.953	3.344	5.294	<0.0001	E.S.
4	Eosinophil	5.050	3.050	2.000	39.60	4.142	0.9262	2.159	0.0438	S.

Analysis of objective parameters of group B as per table no. 4

- Statistically extremely significant results ($p < 0.001$) were found in ESR 44.53% (percentage of decrease), Statistically significant results ($p < 0.01$)

were found in Eosinophil 39.60% (percentage of decrease)

- Statistically non-Significant result ($p > 0.05$) was found in Hb 1.79% (percentage of increase) and TLC 7.32% (percentage of decrease).

Inter Group comparison

Table 5: Intergroup comparison of the subjective parameters: (Mann-Whitney test).

S. N.	Subjective parameters	Group	Mean diff.	SD	SE	P value	Sig
1	Pidika (Acne)	Group-A	1.500	0.6070	0.1357	0.3696	NS
		Group-B	1.300	0.7327	0.1638		
2	Kandu (Itching)	Group-A	0.3000	0.4702	0.1051	0.2226	NS
		Group-B	0.6000	0.7539	0.1686		
3	Daha (Burning)	Group-A	0.2000	0.4104	0.0917	0.0348	S
		Group-B	0.6500	0.7452	0.1666		
4	Srava (Discharge)	Group-A	0.3000	0.5712	0.1277	0.9427	NS
		Group-B	0.2500	0.444	0.0993		
5	Vedana (Pain)	Group-A	0.3500	0.4894	0.1094	0.8424	NS
		Group-B	0.3500	0.5871	0.1313		

The above table shows that Significant result ($p < 0.01$) was found in Daha (burning), not significant result ($p > 0.01$) was found in Pidika (Acne), Kandu (Itching),

Srava (Discharge), and Vedana (pain) after doing intergroup comparison in subjective parameters.

Table 6: Intergroup comparison of the Objective parameters: (Unpaired t-test).

Variables	Group	AT Mean	SD	SE	t-value	P-value	S
1.Hb%	Group-A	0.5750	0.3726	0.0833	0.5128	0.6110	NS
	Group-B	0.6700	0.7399	0.1654			
2.TLC	Group-A	1260.0	1139.4	254.79	0.6493	0.5201	NS
	Group-B	1035.0	1050.5	234.89			
3. EOSINOPHILS	Group-A	4.000	5.400	1.207	0.7620	0.4507	NS
	Group-B	2.900	3.538	0.7911			
4.ESR	Group-A	16.750	11.290	2.524	0.3033	0.7633	NS
	Group-B	18.000	14.571	3.258			

Statistically not significant results ($p > 0.05$) were found in Hb, TLC, Eosinophil, and ESR.

Table 7: Shows the % improvement of Subjective parameters in two groups.

Symptoms	Result in percentage	
	Group-A	Group-B
1. Pidika (Acne)	66.66%	56.52%
2. Kandu (Itching)	17.14%	34.28%
3. Daha (Burning)	12.90%	31.58%
4. Srava (Discharge)	22.22%	16.13%
5. Vedana (Pain)	20%	18.42%

Number of Pidaka (Acne): Statistically extremely significant ($p < 0.001$) results with maximum percentage of relief i.e.66.66% was seen in group A, followed by 56.52% relief in group B which was statistically extremely significant ($p < 0.001$).

Kandu (Itching): Statistically very significant ($p < 0.01$) results with maximum percentage of relief i.e.34.28% was seen in group B, followed by 17.14% relief in group A which was statistically significant ($p < 0.05$).

Daha (Burning): Statistically very significant ($p < 0.01$) results with maximum percentage of relief i.e.31.58% was seen in group B, followed by 12.90% relief in group A which was statistically not significant ($p > 0.05$).

Srava (Discharge): Statistically not significant ($p > 0.05$) results with maximum percentage of relief i.e.22.22% was seen in group A, followed by 16.13% relief in group B which was statistically not significant ($p > 0.05$).

Vedana (Pain): Statistically significant ($p < 0.05$) results with maximum percentage of relief i.e.20% was seen in group A, followed by 18.42% relief in group B which was statistically significant ($p < 0.05$).

Table 8: Shows the % improvement of Objective parameters in two groups.

Symptoms	Percentage of change	
	Group-A	Group-B
1. HB%	-2.99	-1.79
2. TLC	14.92	7.32
3. EOSINOPHILS	57.85	39.60
4. ESR	42.38	44.53

Effect of Therapy on Hb% Score in Two Groups

- ★ In **Group A** the mean Score before treatment was **11.375** which grewed upto **11.715** after treatment, with $SD \pm 0.5595$ giving an improvement of **-2.99 %** which was statistically **significant (P < 0.05)**.
- ★ In **Group B** the mean Score before treatment was **12.280** which grewed upto **12.500** after treatment, with $SD \pm 0.9844$ giving an improvement of **-1.79 %** which was statistically **non-significant (P > 0.05)**.

Effect of Therapy on TLC Score in Two Groups:

- ★ In **Group A** the mean Score before treatment was **7135.0** which lowered down to **6070** after treatment, with $SD \pm 1360.4$ giving an improvement of **14.92 %** which was statistically **very significant** ($P < 0.01$).
- ★ In **Group B** the mean Score before treatment was **7515.0** which lowered down to **6965.0** after treatment, with $SD \pm 1409.9$ giving an improvement of **7.32 %** which was statistically **non-significant** ($P > 0.05$).

Effect of Therapy on ESR Score in Two Groups:

- ★ In **Group A** the mean Score before treatment was **39.050** which lowered down to **22.500** after treatment, with $SD \pm 11.596$ giving (percentage of decreased) an improvement of **42.38 %** which was statistically extremely **significant** ($P < 0.001$).
- ★ In **Group B** the mean Score before treatment was **39.750** which lowered down to **22.050** after treatment, with $SD \pm 14.953$ giving (percentage of

decreased) an improvement of **44.53 %** which was statistically **extremely significant** ($P < 0.001$).

Effect of Therapy on Eosinophil Score in Two Groups:

- ★ In **Group A** the mean Score before treatment was **6.050** which lowered down to **2.550** after treatment, with $SD \pm 5.754$ giving an improvement of **57.85 %** which was statistically **significant** ($P < 0.05$).
- ★ In **Group B** the mean Score before treatment was **5.050** which lowered down to **3.050** after treatment, with $SD \pm 4.142$ giving an improvement of **39.60 %** which was statistically **significant** ($P < 0.05$).

Results of inter groups comparison in objective parameter

Objective parameter was observed Non-significant difference between the groups that means the changes in groups were not different from each other.

Table 9: Showing the overall effect of therapy.

Effects	Group-A		Group-B	
	No. of patients	Percentage	No. of patients	Percentage
No relief	0	0	2	10
Mild relief	0	0	0	0
Moderate relief	7	35	8	40
Significant relief	5	25	3	15
Excellent relief	8	40	7	35

In group-A-Excellent relief was found in 40% of patients, Significant relief in 25%, and Moderate relief was found in 35% of patients. While in group-B, Excellent relief was found in 35% of patients, significant relief in 15%, Moderate relief in 40%, No relief found in 10% of patients.

The overall result shows that Group B ('Vaman karma' followed by treatment with 'Raktshodhak Ghan Vati' & 'Mukhkantikara lepa') has given more effect than Group A ('Raktshodhak Ghan Vati' & 'Mukhkantikar lepa'). According to results, none of the patients absolutely completely cured. Overall result of the thesis is satisfactory one.

Probable Mode of Action of Raktashodhak Ghana Vati

Contents of Raktashodhak Ghana Vati are Nimba (Root), Nimba (Leaves), Nimba (Fruit), Nimba (Flowers), Nimba (Bark), Manjistha, Gudduchi, Dhanyka (1 part each), The coarse powder (Yavkutta churna) form of all the drugs are taken in equal quantity. Now, the eight times of water is added to it and boiled on medium flame till it reduces to one fourth in the quantity. The decoction (Kwatha) so formed is then filtered condensed by continued boiling till Ghana (Semisolid form) is obtained. Then vati of 500 mg each was prepared by this Ghana and stored.

As it has been said earlier, that this disease occurs due to vitiation of Kapha, Vata and Rakta Doshas, it is

understood that the drug should possess the Kapha Vatahara and Rakta Dosha Shamaka effect. The Raktashodhak Ghana Vati has Raktashodhaka, Vranashodhana, Dahaprashamana, Vranaropana, Vedanasthapana, Shothaghna, Varna Prashadana, Srotoshodhaka, Satambhaka property. It has Antioxidant, Analgesic, Antimicrobial property also.

Probable Mode of Action of Mukhkantikar Lepa

- The Drugs of Mukhkantikar Lepa is described in Charaka Samhita in Varnya Mahakashaya (Ch.Su.4/8) & contents of Mukhkantikar Lepa are Chandana, Tunga, Padmaka, Ushira, Madhuka, Manjistha, Sariva, Payasa, Sita, Lata (Durva).
- Mukhkantikar Lepa was taken because of its Srotoshodhaka and Rakta-Pitta Shamaka properties.
- In this combination, Sheeta Virya is dominant thus helps in reduces Daha & Paka.
- Raktashodhaka property of Mukhkantikar Lepa is helpful in increasing superficial blood circulation and stimulating the generation of cells locally. As Shotha was also resolved in some patients which can be attributed to the Shothahara property of this lepa.

CONCLUSION

According to Ayurveda, the Shalmali Kantikar like eruption on the face due to vitiation of Kapha, Vata and Rakta which are found in adolescents are called 'Mukhdushika.'

In Sushrut Samhita Yuwan Pidika is mentioned under Kshudra Rogas.

As per modern science the symptoms of Yuwan Pidika resembles acne vulgaris.

In Charaka Samhita it is not described as separate chapter but in tristreshniya adhyaya Pidika roga is said to occur as Bahya RogaMarga ashrita roga {ch.su.11/47}.

Key pathogenic factors that play an important role in the development of acne are follicular hyper keratinization, microbial colonization with *Propionibacterium acnes*, sebum production, and complex inflammatory mechanisms involving both innate and acquired immunity.

The overall result shows that Group B ('Vaman karma' followed by treatment with 'Raktshodhak Ghan Vati' & 'Mukhkantikara lepa') has given more effect than only medicine Group A ('Raktshodhak Ghan Vati' & 'Mukhkantikar lepa'). According to results, none of the patients absolutely completely cured. Overall result of the thesis is satisfactory one.

Although this study was conducted on small sample size with limited duration, hence any strong conclusion may be premature but it is expected that the present study will disclose some definite clues to the future researchers.

Future Recommendation for the Study

In the present study the size of sample was small and period of study was limited. Hence it is difficult to draw a definite conclusion regarding this study. In this context, it is suggested that the study should be continued with large sample and treatment for longer duration.

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