



Research Article

www.ijrap.net (ISSN:2229-3566)



COMPARATIVE EVALUATION OF *VIRECHANA KARMA* AND *JALAUKAVACHARANA* IN THE MANAGEMENT OF ACNE VULGARIS: A CLINICAL STUDY

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Received on: 15/06/19 Accepted on: 15/12/19

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DOI: 10.7897/2277-4343.110111

ABSTRACT

Acne Vulgaris can be correlated with *Mukhadushika* or *Yuvanpidika* on the basis of similarity in the etiopathogenesis, symptoms, treatment and complication. Acne Vulgaris is an extremely common skin condition involving the sebaceous gland and pilosebaceous unit. It affects approximately 80% of the adolescents around the world; as the patient of Acne become concern after long ineffective modern treatments, so *Ayurveda* is a ray of hope. Therefore, to identify an alternative, safer and permanent cure; the study is conducted. The aim of this study is efficacy of *Virechana karma* and *Jalaukavacharana* in the management of Acne Vulgaris. Total 44 patients were registered for the trial and out of which 38 patients completed the treatment. Total duration of the study was 60 days along with a follow-up period of 30 days. Assessment was done on the basis of subjective parameters (i.e. type of lesions) grading and associated complaints grading. For Subjective parameters for Inter group comparison –“Wilcoxon sign rank test” was applied and for intergroup comparison “Mann and Whitney test” was applied. *Virechana karma* was most effective on comedones (61.9%), papules (64.28%), Inflammation (85.71%) and Itching (73.68%). In *Jalaukavacharana*, maximum result was found in, 85.71% reduction was found in no. of cysts/abscess. 77.78% and 75% reductions were found in nodule and pustule count respectively. The study reveals that *Virechana karma* is effective for longer duration and rate of recurrence is also lesser in *Virechana* but *Jalaukavacharana* gives instantaneous result.

Keywords: Acne, *Virechana karma*, *Jalaukavacharana*

INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of pilosebaceous unit in adolescence characterized by comedones, papules, nodules, cysts and often scars¹. It occurs mostly on cheeks, nose and forehead. Acne vulgaris developed due to obstruction and inflammation of sebaceous follicles [a subtype of pilo-sebaceous units]. The primary acne is micro-comedo lesion which involves inflammation and follicular keratinization and ultimately leads to hyperplasia of sebaceous glands along with over colonization. Host immune response also contributes to the clinical condition. There are various theories and researches which suggest the pathology of acne, but are not well proven. These mainly involve²:

1. Increased sebum production (due to increased end organ sensitivity to Androgen)
2. Follicular epidermal hyper proliferation
3. Increased microbial colonization (especially *Propionibacterium* acnes)
4. Release of inflammatory mediators (especially cytokines)

These events are not individual events and are affected by each other³.

Increased chances of exposure to the pollutant of industrialization may be a factor for this situation. It can effect rural and urban both areas especially between puberty at 30 years of age⁴. The prevalence of facial acne in 16- 18 year olds ranges from 81 to 95% in boys and 79 to 82% for girls⁵. Sometimes it is appeared as major cause of depression in case of young females, so it is a complicated pathological condition especially in young adults. In younger persons, Acne Vulgaris is more common and more

severe in males. It does not always clear spontaneously when maturity is reached. 12% of women and 3 % of men over 25 have acne Vulgaris⁶. The rate does not decrease until the fourth or fifth decade of life.

In *Ayurveda* clearly it is not mentioned in text especially with all clinical features and conditions but it can be correlated with *Mukhdooshika* or *Yauvanpidika* described in *Charaka Samhita* and *Sushruta Samhita* respectively. Means the skin lesions, resembling the sprouts on the bark of *Shalmali* appearing on the face of teenagers caused due to *kapha*, *vata* and *rakta* together is known as *Mukhdooshika*⁷. Symptomatically *Mukhdooshika* and *Yauvanpidika* are somewhat similar with slight difference in *doshik* phenomenon. *Yauvanpidika* has involvement of *kapha* and *vata* and in *Mukhdooshika*, *kapha* predominance but description of both clearly indicates *rakta* dushti hence clinical features shows involvement of seat of *Ras* and *Rakta* both. Seat of *rakta* is between *twaka* and *mamsa*. Management of Acne vulgaris in modern medicine has very low spectrum as it has often limits with corticosteroids, antibiotics and anti-inflammatory drugs. All these drugs have good effect instantaneously but fail to prevent recurrence; although these drugs have efficacy but possible definite adverse effects. In *Ayurveda* so many types of remedies are described to treat such type of disorder including external application, non-invasive surgical procedures, para surgical procedures and especially *Panchakarma*. As per *Ayurvedic* description the disease has *Kapha*, *Vata* and *Rakta* involvement so according to development of disease treatment should have *Shodhana* property. So we have taken *Virechana* as *sarvadehic Shodhana karma*⁸. Also *Sushrut* has mentioned *Virechana karma* in skin disorder in *Kushtha prakarana*⁹. In *Ayurvedic* texts, *Vamana Karma* and *Raktamokshana* are chief bio purificatory procedures mentioned for the treatment of *Mukhdooshika*. As

Vamana Karma is a tedious process and has more complication than other procedures. Most of the patients of *Mukhdooshika* belong to *Sukumar Prakriti* and student profile so *Raktamokshana* and *Virechana* is more suitable for them as a *Shodhana* procedure. *Virechana* is a method, which is much safer, less complicated and an almost painless procedure as compared to others. Thus, it is recommended for *Mukhdooshika* management and it is widely used as *Shodhana* therapy in routine now. In addition to the acceptability and popularity, the *Virechana Karma*, is considered the best treatment for morbid and increased *Pitta Dosha* and it is more useful in eradicating the diseases originated from the vitiated *Pitta*. *Pitta* is closely related with *Agni*, which is responsible for the digestive and metabolic processes in the body. *Raktamokshana* in the form of *Jalaukavacharana* is a method, which do *Shodhana* and *Rakataprasadana* and is much safer, less complicated and an almost painless procedure as compared to others. Thus, it is recommended for the fearful, physically weak, women and tender natured people. *Virechana* and *Jalaukavacharana* can provide a safe and economic remedy for this common ailment. Present research has been selected to study whether '*Virechana karma*' or '*Jalaukavacharna*' is better in management of *Acne vulgaris*. *Jalaukavacharana* and *Virechana* in the management of *Acne vulgaris* was done to analyse and evaluate the complete concept and aetiopathogenesis and treatment of *Acne Vulgaris* based on clinical study in light of *Ayurvedic* and modern medicine. So an effort was made to study the comparative efficacy of *Jalaukavacharana* and *Virechana karma* in the management of *Acne vulgaris*.

Aims and objectives

1. To evaluate the effect of *Jalaukavacharana* in the management of *Acne vulgaris*.
2. To evaluate the effect of *Virechana karma* in the management of *Acne vulgaris*.
3. To compare the effect of *Virechana karma* and *Jalaukavacharana* in the management of *Acne Vulgaris*.
4. To identify a safe and effective *Ayurveda* treatment for *Acne Vulgaris* with minimum/no recurrence.

MATERIAL AND METHODS

Criteria for Selection of the patients

44 Patients with *Acne Vulgaris* were selected from the O.P.D. / I.P.D. department of *Panchakarma* and *Kaya-chikitsa*, *Rishikul State Ayurvedic* (P.G.) College and Hospital, Haridwar, India. The study was conducted on randomly divided into 2 groups that mean 22 patients in each group on the basis of criteria of inclusion and exclusion with detailed clinical history and physical examinations and other necessary / desired investigations.

Registration number for this clinical trial- CTRI/2019/02/017502

(A) Inclusion criteria

- Age: 15-30 years.
- Patients of either sex were taken.
- Patient fulfilling the diagnostic criteria of *Acne vulgaris*.

- Patients fit for *Virechana karma*.
- Patients fit for *Jalaukavacharana*
- Patient willing to participate in above mentioned trial with informed consent.

(B). Exclusion criteria

- Age < 15 years and > 30 years.
- Patient with known bleeding disorder
- Patient not fit for *Raktamokshana*
- Patient not fit for *Virechana karma*
- The patient having any systemic complicated illness
- Any other skin diseases.
- Patient with acne on regions other than face.
- Known cases of Diabetes Mellitus.

Diagnostic Criteria

Diagnosis was made on the basis of typical lesions found in *acne vulgaris* i.e. comedones, papules and pustules including Nodules, cysts and Scars found in advanced cases of the disease.

Interventions

Group A

Patients were administered with 2 sittings of *Virechana karma* in 60 days with the interval of 15 days in between. During the interval Placebo was given.

Group B

Patients were administered with 2 sittings of *Jalaukavacharana* (with 3 applications in each sitting, between applications there was interval of 7 days), between 2 sittings there was gap of 15 days in 60 days and during interval, Placebo was given.

Assessment was done on every 15 days in the both groups of patients.

Period of study: 60 days

Follow up period: 30 Days

Randomization and Blinding

Patients were randomly distributed by using Computerised randomization method. The study protocol was reviewed and approved by an Institutional Review Board at the college level and an ethical clearance was obtained from the Institutional Ethical Committee. From patients, written informed consents were taken before the commencement of the study. The importance of adherence to the treatment dates for visits and schedule for follow up were issued to the patients.

Statistical analysis

For Subjective parameters for Inter group comparison – “Wilcoxon sign rank test” was applied and for intergroup comparison “Mann and Whitney test” was applied.

RESULT**Lab investigations**

These investigations were carried out before the initiation of trial to rule out any systemic illness.

- Hb%, T.L.C., D.L.C.
- E.S.R.
- Random Blood Sugar
- BT/CT
- LFT

Table 1: The effect of Virechana karma on subjective parameters (Wilcoxon sign rank test)

Symptoms	N	Median		Wilcoxon Significantned Rank W	P-Value	% Effect	Result
		BT	AT				
Comedones	18	3.0	1.0	-171.0	< 0.001	61.9 %	Highly Significant
Papules	18	2	0	-210.0	< 0.001	64.28%	Highly Significant
Pustules	7	0	0	-6.0	> 0.05	37.5%	Insignificant
Nodules	17	2	1.5	-45.0	< 0.05	28.12%	Significant
Cyst/Abscess	4	0	0	-1.0	> 0.05	25%	Insignificant
Scar	18	2.0	2.0	0	> 0.05	0%	Insignificant
Inflammation	11	1.000	0.000	-66.0	< 0.001	85.71%	Highly Significant
Pain	17	1.500	1.000	-120.0	< 0.001	59.26%	Highly Significant
Secretion	18	1.000	1.000	-10.0	> 0.05	25%	Insignificant
Itching	14	1.000	0.000	-105.0	< 0.001	73.68%	Highly Significant
Burning	5	0.000	0.000	-3.0	> 0.05	33.33%	Insignificant

BT - Before Treatment, AT - After treatment

On assessment of subjective symptoms it was found that effect of group A on Comedones, Papules Inflammation, Pain and Itching was highly Significant as value of $p < 0.001$ in each while result was significant in Nodules and Insignificant ($p > 0.05$) in remaining symptoms (Secretion, burning, Pustule, Cyst, Abscess, Scar).

Table 2: The effect of Jalukavacharna on subjective parameters (Wilcoxon sign rank test)

Symptoms	N	Median		Wilcoxon Significantned Rank W	P-Value	% Effect	Result
		BT	AT				
Comedones	20	2.5	1.0	-153.0	< 0.001	66.7%	Highly Significant
Papules	20	2.00	1.000	-136.0	< 0.001	50%	Highly Significant
Pustules	7	0.0	0.0	-21.0	< 0.05	75%	Significant
Nodules	19	2.0	0.0	-190.0	< 0.001	77.78%	Highly Significant
Cyst/Abscess	10	0.5	0.0	-45.0	< 0.05	85.71%	Significant
Scar	18	2.0	2.0	0	> 0.05	0%	Insignificant
Inflammation	13	1.0	0	-91.0	< 0.001	88.89%	Highly Significant
Pain	18	1.0	0.0	-171.0	< 0.001	84.61%	Highly Significant
Secretion	20	1.0	0.5	-136.0	< 0.001	60.71%	Highly Significant
Itching	15	1.0	0.0	-120.0	< 0.001	91.30%	Highly Significant
Burning	10	0.5	0.0	-55.0	< 0.05	92.3%	Significant

BT - Before Treatment, AT - After treatment

Statistically highly significant result was found in subjective parameters on Comedones, Papules, Nodules, Inflammation, Pain, Secretion, Itching ($p < 0.001$ in each). Statistically Insignificant result was found in Pustules, Cyst/Abscess, Scar in each and statistically significant result in Burning.

Effect of Virechana and Jalaukavacharana in the management of Acne vulgaris**Table 3: Comparative assessment of % relief in subjective parameters**

Symptoms	% Relief	
	Group A	Group B
Comedones	61.9%	66.7%
Papules	64.28%	50%
Pustules	37.5 %	75%
Nodules	28.12 %	77.78%
Cyst/Abscess	25%	85.71%
Scar	0 %	0%
Inflammation	85.71%	88.89%
Pain	59.26%	84.61%
Secretion	25 %	60.71%
Itching	73.68%	91.30%
Burning	33.33%	92.3%

Table 4: Intergroup comparison of subjective parameters

Subjective Parameter	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	P-Value	Result
Comedones	Group A	18	1.44	316	145	> 0.05	Insignificant
	Group B	20	1.70	425			
	Total	38					
Papule	Group A	18	1.0	295	124	> 0.05	Insignificant
	Group B	20	1.35	446			
	Total	38					
Pustule	Group A	18	0.167	327	156	> 0.05	Insignificant
	Group B	20	0.3	414			
	Total	38					
Nodules	Group A	18	0.5	234	63	< 0.001	Highly Significant
	Group B	20	1.4	507			
	Total	38					
Cyst/abscess	Group A	18	0.056	278.5	107.5	< 0.05	Significant
	Group B	20	0.6	462.5			
	Total	38					
Scar	Group A	18	0	0	0	0	Non-Significant
	Group B	20	0	0			
	Total	38					
Inflammation	Group A	18	0.667	334	163	> 0.05	Insignificant
	Group B	20	0.80	407			
	Total	38					
Pain	Group A	18	0.89	318	147	> 0.05	Insignificant
	Group B	20	1.10	423			
	Total	38					
Secretion	Group A	18	0.2778	253	82	< 0.01	Significant
	Group B	20	0.850	488			
	Total	38					
Itching	Group A	18	0.78	314	143	> 0.05	Insignificant
	Group B	20	1.05	427			
	Total	38					
Burning	Group A	18	0.11	279	108	< 0.05	Significant
	Group B	20	0.6	462			
	Total	38					

Table 5: Estimation of overall response in each group

Improvement (%)	Group A		Group B	
	No	%	No	%
Excellent (75-100%)	0	0%	5	25%
Marked Improvement (50-74%)	9	50%	15	75%
Mild Improvement (25-49%)	9	50%	0	0%
No Improvement (<24%)	0	0%	0	0%

Grading and overall assessment scale

Effect of the therapies were compared before and after the treatment on the basis of self-formulated scoring scales based on subjective parameters associated with the disease.

Table 6: Grading of subjective parameter

Subjective parameters	Subjective parameters
Type of Lesion (According to grade)	Inflammation
Comedones	Pain
papules	Secretion
Pustules	Itching
Nodules	Burning Sensation
Cysts	
Scars	

Table 7: Chief grading system

Lesions	Grade
No lesion	0
Comedones [occasional papules]	1
Papules, Comedones, few Pustules	2
Predominant pustules, nodules, cyst	3
Widespread Scars, comedones, papule, pustule, nodule	4

Table 8: Grading for type of lesion

No. of Comedones, Papules, Pustules, Nodules, Cyst, Scar	Grade
No. of Lesions	0
1-5	1
6-10	2
11- 15	3
16-20	4

Table 9: Grading for type of lesion

Inflammation, Pain, Secretion, Itching, Burning	Grade
No Inflammation	0
Mild	1
Moderate	2
Severe	3

Overall percentage improvement of each patient was calculated by the following

$$\text{Formula: Total BT-Total AT / Total BT} \times 100$$

The result thus obtained from individual patient was categorized according to the following grades:

Marked Improvement	≥ 75% relief
Moderate Improvement	≥ 50% up to 74% relief
Mild Improvement	≥ 25% up to 49% relief
No Improvement	≤ 24% relief

Follow up

After follow up period of 1 month, In *Jalaukavacharana* patients, there was seen recurrence of acne while patients in whom *Virechana* was done showed delayed recurrence. This shows that *Jalaukavacharana* give instantaneously effect while *Virechana* gives long term effect due to *Sarvdehic Srotoshodhana*.

DISCUSSION

Virechana do *Srotoshodhana*, *Agni deepana* and *Vata Anulomana*.

Table 10: Probable mode of action of *Virechana*

Karma	Mode of action
<i>Deepana</i>	Enhances appetite and it pacifies vitiated <i>Vata dosha</i>
<i>Snehapana</i> , <i>Abhyanga</i> and <i>Swedana</i>	Expels vitiated <i>Doshas</i> from <i>Shakha</i> to <i>Kosha</i> . By virtue of its property, <i>Ghrta</i> is <i>Pitta-Shamak</i> and <i>Agni-Deepak</i> .
<i>Virechana Karma</i>	It is targeted to expel increased <i>Pitta Dosh</i> out of the body i.e. <i>Srotoshodhana</i> . As we know that <i>Rakta</i> is said to be <i>Pitta Sadharmi</i> so it will pacify vitiated <i>Pitta</i> as well as vitiated <i>Rakta</i>
<i>Sansarjana krama</i>	<i>Sanshaman</i> to subside remaining <i>doshas</i> after <i>Samshodhana</i>

Probable mode of action of *Jalukavacharna*

As in Acne Vulgaris, vitiated *Dosha/Dhatu/Mala* gets accumulated in *Srotas (Lomakupa)*, causing blockages and leads to acne lesion formation. *Jalaukavacharana* being a bio-purificatory method removes deep seated toxins by letting out blood and removes blockage. As the patients in which acne occur belong to *Sukumara Prakriti*, therefore it was selected here for *Raktamokshana*. Leech application removes blood from the site as well as injects biologically active substance¹⁰ that help to manage various ailments. The saliva, which contains a hundred or so different substances, includes an antiplatelet aggregation factor, anaesthetic and anti-inflammatory and antibiotic agents. Leech saliva also contains an anticoagulant, hirudin, which stops blood clotting and dissolves thrombi, clearing partial and complete blockages. When leeches bite, chemicals in their saliva dilate hosts blood vessels and thin their blood. Simultaneously secreting a local anaesthetic masks any pain from the bite, rendering hosts unaware of leech's presence. By ingesting excess blood, leeches reduce tissue swelling and promote healing. These microcirculatory actions enable fresh oxygenated blood to reach hosts affected areas prior to the restoration of the normal circulation. Overall, all biologically active substances have thrombolytic, anti-inflammatory and immune stimulant action¹¹. Secondary bleeding for few hours, due to hirudin, causes removal of toxins along with increased circulation to that particular area, promoting faster wound healing without any scar formation. A healthy cell gets sick when it is deprived of needed oxygen and

nutrition and is unable to remove toxins accumulated during metabolism. Biologically active substances in leech saliva help the cells to absorb necessary nutrition and eliminate toxins¹². A study revealed that *Staphylococcus aureus* bacteria, which causes infection of blood, bones and lungs, feeds on iron. Due to bloodletting lesser the availability of iron occur in the system, so less the chance of *staphylococcus* infection being present¹³. *Acharyas* indicated *Jalaukavacharana* in *Rakta-Dushti* with *Pitta* involvement¹⁴. In *Mukhadushika* also, there is primarily *Rakta-Dushti* due to *Pitta* and *Kapha*. As *Jalaukavacharana* removes vitiated *Pitta/Rakta*, which causes reduction in inflammation, burning and no. of pustules and cysts. It also reduces the pooled blood and pus which results in *Srotoshodhana*. This *Srotoshodhana* causes normalization of *Kapha* and further reducing *Kandu* and no of comedones, papules and nodules. *Srotoshodhana* also leads to *Anulomana* of obstructed *Vata* which may be the reason for significant relief in pain. As vitiated *Pitta* imparts different colours to the skin¹⁵ while *Rakta* causes improved complexion¹⁶.

Results obtained data suggests that *Virechana karma* was most effective on comedones and popular lesions. It was found to be highly beneficial in reducing Inflammation, Pain and Itching. *Virechana* is targeted to expel increased *Pitta Dosh* out of the body i.e. *Srotoshodhana*. As we know that *Rakta* is said to be *Pitta Sadharmi* so it will pacify vitiated *Pitta* as well as vitiated *Rakta* and also by this *Srotoshodhana*, vitiated *Pitta* as well as *Kapha* which were residing in the blood get removed. This

Shodhana reduces the lesions i.e. *lesions* which were occurring due to *Rakta-dushti*. Also, it subsides the associated symptoms that were occurring due to the vitiated *Pitta* like Inflammation, Pain, Secretion, Burning. As relief was seen in *Kapha* symptoms i.e. Itching as well, therefore *Virechana* must be removing vitiated *Kapha* also, to some extent. *Srotoshodhana* causes *anulomana* of trapped *Vata*, therefore reduction in Pain was also observed. Effect of *Virechana* was more pronounced on comedones and papules in comparison to nodule, cyst and scar. The rationale behind this seems to be that comedones were occurring in a widespread manner all over the face while nodules and pustules were localized to few areas only and *Virechana* has *Sarvadehik Shodhana* property. That's why the effect of *Virechana* was found to be more on those lesions. Drugs used in *Virechana* has *Ushna Virya* and *Srotoshodhaka* properties which pacifies the vitiated *Kapha* and *Sadharmi Dhatu (Meda)*, so due to which comedones resolve. Also due to *Sukshma Guna* and *Vyavayi Guna*, it penetrates minute channels clearing the *Srotavarodha* and causes *Vishyandana* of the *Kapha* and *Sadharmi Dhatu*, thereby reduced the *Kaphaja* lesions i.e. comedones and papules as well as *Kaphaja* symptoms especially Inflammation, Itching. *Tikshna Guna* of drugs must have helped in reducing *Medogarbhata* by penetrating micro pores and further reducing accumulated *Kapha* and *Meda* inside them and ultimately reducing no of comedones, papules and nodules.

On analyzing Subjective parameters, data suggests that *Jalaukavacharana* was most effective on nodular, comedones and Papular lesions. It was found to be highly beneficial in reducing Inflammation, Pain, Secretion and Itching. *Jalaukavacharana* provided complete resolution in 13.3% patients. Leech removes vitiated *Rakta* from the nearby area

which causes *Srotoshodhana* locally. By this *Srotoshodhana*, vitiated *Pitta* as well as *Kapha* which were residing in the blood gets removed. This *Shodhana* reduces the lesions which were occurring due to *Rakta-dushti*. Also, it subsides the associated symptoms that were occurring due to the vitiated *Pitta* like inflammation and discoloration. As relief was seen in *Kapha* symptoms i.e. itching as well, therefore *Jalaukavacharana* must be removing vitiated *Kapha* also, to some extent. *Srotoshodhana* causes *anulomana* of trapped *Vata*, therefore reduction in *Vedana* and Blackish discoloration was also observed. Recent studies have reported presence of analgesic substances in leech saliva, which supports this particular effect of *Jalaukavacharana*. Effect of *Jalaukavacharana* was more pronounced on pustules and nodules in comparison to comedones. The rationale behind this seems to be that comedones were occurring in a widespread manner all over the face while nodules and pustules were localized to few areas only and those sites were given preference while leech application. That's why the effect of *Jalaukavacharana* was found to be more on those areas.

Also, comedones (*Medogarbhata pidika*) are supposed to be formed due to the vitiated *Kapha* and *Sadharmi Dhatu (Meda)*. While *Jalaukavacharana* is said to be more effective in *Pitta* vitiated diseases in comparison to *Kapha* vitiated conditions although it showed effectiveness in reducing *Kaphaja* symptoms also to some extent. That may be a reason for better reduction in pustular lesion where vitiated *pitta* was also involved in comparison to comedones count reduction; due to *Srotoshodhaka* property of *Jalaukavacharana* which can be assumed responsible for additional relief in pustules and *Medogarbhata* causing further reduction in number of comedones.



Figure 4



Figure 5



Figure 6: *Virechana karma*

Figure 4-6: Images of Patients – *Virechana karma*



Figure 7



Figure 8



Figure 9

Figure 7-9: Images of Patients – *Jalaukavacharana*

CONCLUSION

The study reveals that *Virechana karma* is effective for longer duration and rate of recurrence is lesser in *Virechana* but *Jalaukavacharana* is instantaneously highly effective for the management of Acne vulgaris.

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Cite this article as:

Lalita Sharma and Alok Kumar Srivastava. Comparative evaluation of Virechana Karma and Jalaukavacharna in the management of Acne Vulgaris: A clinical study. Int. J. Res. Ayurveda Pharm. 2020; 11(1):52-59 <http://dx.doi.org/10.7897/2277-4343.110111>

Source of support: Nil, Conflict of interest: None Declared

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