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RESEARCH ARTICLE

EFFICACY OF JALAUKAVACHARNA IN THE MANAGEMENT IN THE ACNE VULGARIS: A CLINICAL STUDY.

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Abstract

Acne Vulgaris is an extremely common skin condition involving the sebaceous gland. The pilosebaceous unit of the skin gets affected in acne. The age group, which is affected, is of adolescent but the problem can continuous to exist till middle age sometime. It affects approximately 80% of the adolescents around the world. Acne Vulgaris can be correlated with *Mukhadushika* or *Yuvanpidika* on the basis of similarity in the etiopathogenesis, symptoms, treatment & complication. As the patient of Acne become concern after long ineffective modern treatments, so Ayurveda is a ray of hope and is frequently sought by the public. Therefore, to identify an alternative, safer and permanent cure; the study is conducted.

Aims And Objective: "Efficacy of *Jalaukavacharna* in the management of Acne Vulgaris."

Materials And Methods:- Total 22 patients were registered for the trial and out of which 20 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.

Statistical Analysis: For Subjective parameters for Intra group comparison – "Wilcoxon sign rank" test was applied.

Results: In *Jalaukavacharna*, Percentage wise, 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 while 66.7% relief was found in comedones count followed by a 50% reduction in no. of papule. On Scars count 0% result was obtained. The overall effect i.e. Excellent response was seen in 25% patients and Marked improvement in 75% patients.

Conclusion: The study reveals that *Jalaukavacharna* gives instantaneous result.

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Introduction:-

Acne vulgaris is a chronic inflammatory disease of pilosebaceous unit in adolescence characterized by comedones, papules, nodules, cysts and often scars^[1]. 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 overcolonization. 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 involve^[2]:

1. Increased sebum production (due to increased end organ sensitivity to Androgen)
2. Follicular epidermal hyperproliferation
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 other^[3]

Increased chances of exposure to the pollutant of industrialization may be a factor for this situation. It can affect rural and urban both areas especially between puberty at 30 years of age^[4]. The prevalence of facial acne in 16-18 year olds ranges from 81 to 95% in boys and 79 to 82% for girls^[5]. 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 Vulgaris^[6]. 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 *Charak Samhita* and *Sushrut 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* & *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* predominancy 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 reoccurrence. 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, parasurgical 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. *Vamana Karma* and *Raktamokshana* are chief purificatory procedures mentioned for the treatment of *Mukhdooshika* along with dozens of topical applications and oral medications. As *Vamana Karma* is an exhaustive and has more complication than other procedures, most of the patients of *Mukhdooshika* belong to *Sukumar Prakriti* and student profile so *Raktamokshana* is more suitable for them as a *Shodhana* procedure. Most of the patients of *Mukhdooshika* belong to *Sukumara Prakriti* and student profile. So *Raktamokshana* is more suitable for them as a *Shodhana* procedure. *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. *Jalaukavacharna* can provide a safe and economic remedy for this common ailment. Present research has been selected to study whether '*JALAUKAVACHARNA*' is better in the management of Acne vulgaris. *Jalaukavacharna* 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.

Aims And Objectives:-

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

Material & methods:-

Criteria for Selection of the patients:-

22 Patients with *Acne Vulgaris* were selected from the O.P.D. / I.P.D. department of *Panchkarma* and *Kaya-chikitsa*, Rishikul State Ayurvedic (P.G.) College and Hospital, Haridwar. Patients were taken on the basis of criteria of inclusion and exclusion with detailed clinical history and physical examinations and other necessary / desired investigations.

Inclusion criteria:-

1. Age: 15-30 years.
2. Patients of either sex were taken.
3. Patient fulfilling the diagnostic criteria of Acne vulgaris.
4. Patients fit for *Jalaukavacharna*.
5. Patient willing to participate in above mentioned trial with informed consent.

Exclusion criteria:-

1. Age <15 years and >30 years.
2. Patient with known bleeding disorder
3. Patient not fit for *raktmokshana*
4. The patient having any systemic complicated illness
5. Any other skin diseases.
6. Patient with acne on regions other than face.
7. Known cases of Diabetes Mellitus.

Diagnostic Criteria:-

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

Intervention:-

1. Patients were administered with 2 sittings of *Jalaukavacharna* (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.
2. Assessment was done on every 15 days in the both groups of patients.

Period of study :-

30Days

Follow up period:-

30 Days.

Result:-**Lab investigations:-**

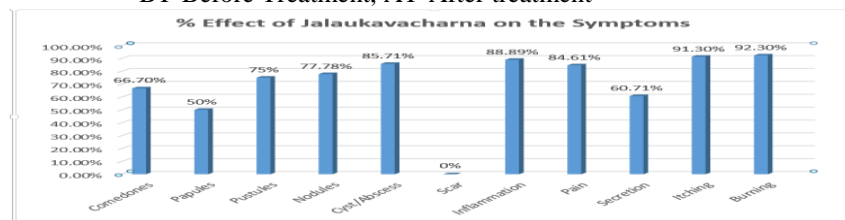
These investigations were carried out before the initiation of trial to rule out any systemic illness.

1. Hb%, T.L.C., D.L.C.
2. E.S.R.
3. Random Blood Sugar
4. BT/CT
5. LFT

Table No.1:-Showing the effect of *Jalukavacharna* on subjective parameters (Wilcoxon sign rank test)

SYMPTOMS	N	Median		Wilcoxon Significant used 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

**Analysis of subjective parameters as per table no.-1**

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**.

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 No. 2:-

Subjective parameters:-	Subjective parameters:-
<ul style="list-style-type: none"> > Type of Lesion (According to grade) > Comedones > papules > Pustules > Nodules > Cysts > Scars 	<ul style="list-style-type: none"> > Inflammation > Pain > Secretion > Itching > Burning Sensation

Grading Of Subjective Parameter:-**Table No. 3:-Chief grading system**

1. 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

Grading For Type Of Lesion**Table No.4:-**

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

Table No.5:-

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

Overall percentage improvement of each patient was calculated by the following

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

Total BT

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

1. Marked Improvement $\geq 75\%$ relief
2. Moderate Improvement $\geq 50\%$ up to 74% relief
3. Mild improvement $\geq 25\%$ up to 49% relief
4. No improvement $\leq 24\%$ relief

Follow Up-

After follow up period of 1 month, In *Jalaukavacharana* patients, there was seen recurrence of acne This shows that *Jalaukavacharana* give instantaneously effect.

Discussion:-**Probable Mode Of Action Of Jalukavacharna:-**

As in *Mukhadushika*, vitiated *Doṣa/Dhatu/Mala* get accumulated in *Srotas (Lomakupa)*, causing blockages and leads to *Pidika* formation. *Jalaukavacharana* being a bio-purificatory method removes deep seated toxins by letting out blood, clearing *Srotasa* and pacifying vitiated *Dosha*. As *Jalaukavacharana* is the preferred way of blood-letting in *Sukumara Prakriti*, therefore it was selected here for *Raktamokshana*. Although the amount of sucked blood in case of leech therapy is very less in comparison to tradition venipuncture, but the efficacy should not be judged by the amount of blood. Leech application not only removes blood from the site but also injects biologically active substance^[8] which help to manage various ailments. Like Hirudin and Calin, which act as anticoagulants, also preventing inflammation and slow cleansing of wound. Histamine by its vaso-dilating property allows more blood to come to the site of leech application or lesion thus replacing old stagnant blood with fresh blood. Overall, all

biologically active substances renders thrombolytic, anti-inflammatory and immune stimulant action^[9]. 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 toxins^[10]. During leech therapy, leeches are placed directly on the site of lesion, so that they can feed directly on the pus and at the same time, more leeches are placed around the diseased area to get rid of the pooled blood. Because pooled blood causes pressure, leading to tenderness bloodletting, on the other hand, relieves the patient from pain. Also, it is already proven that leech saliva contains analgesics which may be the reason behind pain relief. It can also be assumed as the leech sucks stagnant blood, *Shodhana* of the morbid *Dosha* via sucked blood occurs, which in turn results in the *Srotoshuddhi* and trapped *Vata* gets relieved which was responsible for the pain. According to modern science, leech injects anti-inflammatory and bacteriostatic substances with its saliva which helps in subsiding the associated symptoms^[8]. A study revealed that *Staphylococcus aureus* bacteria, which causes infection of blood, bones and lungs, feeds on iron. Therefore, lesser the available iron in the system, less the chance of *staphylococcus* infection being present^[11]. Relief in infective/inflammatory conditions by *Jalaukavacharana* can be attributed to results obtained by this study. *Jalaukavacharana* is indicated by *Acharyas* in *Rakta-Dushti* with *Pitta* involvement^[12]. 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 & 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 & 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 skin^[13] while *Rakta* causes improved complexion^[14], *Shodhana* of the vitiated *Pitta* and *Rakta* by *Jalaukavacharana* improves complexion.

Results of Jalaukavacharana:-

1. 51.61% change was observed in the grading of chief complaint i.e. *lesions*.
2. Statistically Highly Significant results were found in on Nodular comedones and Papular lesions.
3. Statistically Highly Significant results were found in reducing Inflammation, Pain, Secretion and Itching.
4. Percentage wise, 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 while 66.7% relief was found in comedones count followed by a 50% reduction in no. of papule. On Scars count 0% result was obtained.
5. 88.89% relief was observed in *inflammation*, 84.61% relief was observed in *Pain*, 60.71% in *secretion*, 91.30% in *itching* followed by 92.3% relief in *Burning*.
6. After the intervention completion, there was 5% patient of grade IV and grade III acne which were 15% and 40% respectively, before treatment.
7. Before treatment there were 40% patient of grade II which also got reduced to 13.33% got complete remission after the completion of intervention.

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 get 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*.

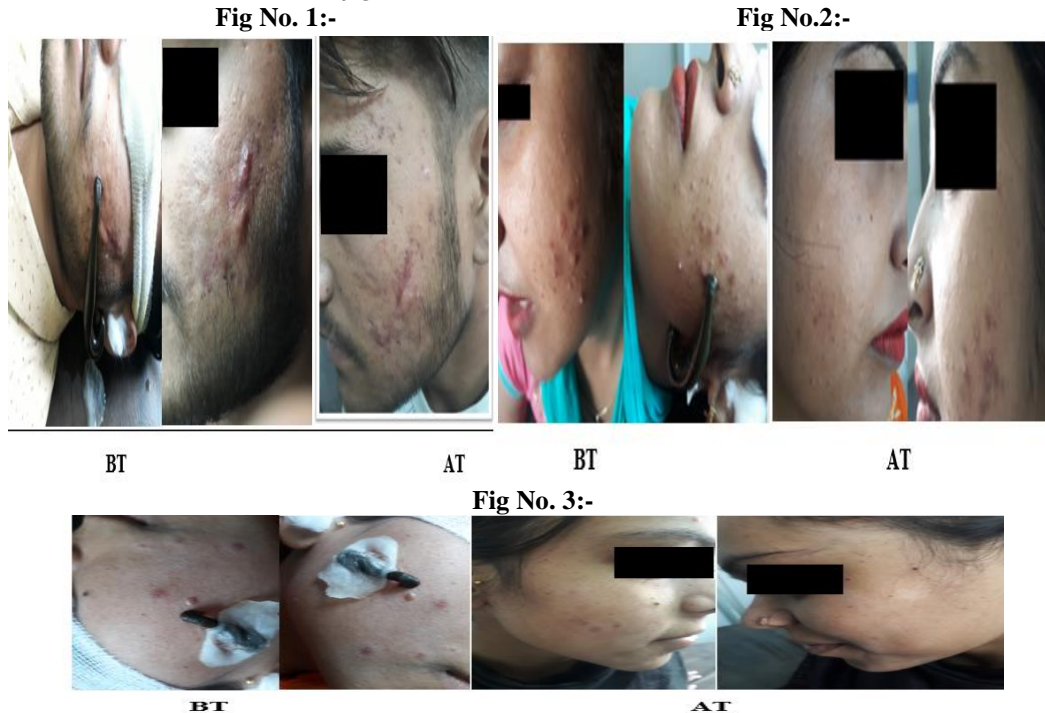
Effect of *Jalaukavacharana* was more pronounced on pustules and nodules in comparison to comedones. The rationale behind this seems to be that comedones were occurring in a widespread manner all over the face while nodules and pustules were localized to few areas only and those sites were given preference while leech application. That's why the effect of *Jalaukavacharana* was found to be more on those areas.

Also, comedones (*Medogarbha 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 countreduction.

Due to Srotoshodhaka property of *Jalaukavacharna* which can be assumed responsible for additional relief in pustules and *Medogarbhata* causing further reduction in no of comedones.

Images of Patients – *Jalaukavacharna*(fig 1-3)



Conclusion:-

1. Majority of patients were of age group **20-24years (43.18%)** and 15-19 years (40.90%).
2. Premenstrual flare was seen in 80% of the patients.
3. 44.4% patients were having **grade II** lesions i.e. papulo-pustular type
4. Disease was of chronic type in most of the patients as 43.33% were having lesions since last 2-5 years while 16.67% were having the complaint from more than 5 years.
5. Scars were present in 88.6% of the patients and that too were from more than 2 to 5 years.
6. Premenstrual flare was seen in 80% of the patients.
7. 65.9% were of *Pitta-Kapha Prakriti* while all the patients were having either *Pitta* or *Kapha* or both *Pitta-Kapha* as dominant *Dosha* involved in their disease.
8. The study reveals that *Jalaukavacharna* is instantaneously highly effective for the management of Acne vulgaris.

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I express my sincere and hearty gratitude to my respected Guide Dr. Alok kumar Srivastava Sir , Professor , Department of *Panchakarma*, Main Campus, *Uttarakhand Ayurveda University* , Haridwar under whose affectionate guidance this tenacious task was accomplished.

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