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

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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:

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. 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. The prevalence of facial acne in 16-18 year olds ranges from 81 to 95% in boys and 79 to 82% for girls. 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. 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. 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 mansa. 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 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 Raktamokṣaṇa 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 then other procedures, most of the patients of Mukhdooshika belong to Sukumar Prakriti and student profile so Raktamokṣaṇa is more suitable for them as a Shodhana procedure. Most of the patients of Mukhdaushika belong to Sukumara Prakriti and student profile. So Raktamokṣaṇa is more suitable for them as a Shodhana procedure. Raktamokṣaṇa 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. Jalaukavacharana 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. Jalaukavacharana 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 Kayachikitsa, 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:–
30 Days

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 BT | Median AT | Wilcoxon Signed Rank W | P-Value     | % Effect | Result     |
|-------------|-----|-----------|-----------|-------------------------|-------------|----------|------------|
| Comedones   | 20  | 2.5       | 1.0       | -153.0                  | <0.001      | 68.78%   | 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       | -43.0                   | <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      | 88.69%   | 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       | -25.0                   | <0.05       | 92.38%   | 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: |
|------------------------|------------------------|
| Type of Lesion (According to grade) | Inflammation |
| Comedones | Pain |
| Papules | Secretion |
| Pustules | Itching |
| Nodules | Burning Sensation |
| Cysts | |
| Scars | |

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Grading Of Subjective Parameter:-

Table No. 3:-Chief grading system

| Lesions                                      | GRADE |
|----------------------------------------------|-------|
| No lesions                                   | 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, Pustules, Nodules, Cyst, Scar | GRADE |
|------------------------------------------------|-------|
| 0                                              | 0     |
| 1-2                                           | 1     |
| 3-10                                          | 2     |
| 11-15                                         | 3     |
| 16-20                                         | 4     |

Overall percentage improvement of each patient was calculated by the following formula:

$$\text{Total BT - Total AT} \times 100$$

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 Doṣā/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 Doṣha. 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 a 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 leach 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)

| Fig No. 1: | Fig No. 2: |
|------------|------------|
| BT         | AT         |
|            |            |

| Fig No. 3: |
|------------|
| PT         | AT         |

Conclusion:-
1. Majority of patients were of age group 20-24 years (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.

Acknowledgement:-
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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