



THERAPEUTIC EFFECT OF KHADIRA (ACACIA CATECHU) IN EKAKUSTHA (PSORIASIS)

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ABSTRACT

Khadira [Acacia catechu] is considered as the best remedy for the treatment of skin disorders in Ayurveda system of medicine. The gummy extract of Acacia catechu is applied to the patient of Ekakustha (psoriasis) orally since ancient time. The present study aimed to clinically evaluate the therapeutic effect of khadira in Ekakustha (Psoriasis). 40 Patients suffering from Psoriatic skin disorders were selected strictly based on inclusion and exclusion criteria of the study. A dry powder of black catechu 3 gms twice daily was administered to the selected patients. PASI (Psoriasis Area Severity Index) was applied in before and after treatment to assess the treatment effect. The measurement was done based on three major clinical criteria, i.e., erythema, induration, and desquamation. Obtained effects in terms of numerical measurement of PASI were evaluated statistically. Results showed highly significant ($P < 0.001$) effect of Khadira in Ekakustha vis-à-vis Psoriasis.

KEYWORDS: Kustha, Psoriasis, PASI, Khadira.

INTRODUCTION

In the classical text, Kustha is specified as an obstinate skin disorder. This disease affects the cosmetic values of an individual. In the pre-historic era when the human beings are realizing the diseases and extending their remedies, they tried hard to find out the medicaments of Kustha considering its disgraceful entity. Eighteen clinical varieties of Kustha has described in classical Ayurveda text, which includes Ekakustha. Clinical and morphological features of Ekakustha are correlated with psoriasis by many scholars. Etiologies and pathogenesis of Kustha and Ekakustha have described elaborately in the classical text. Specific pathogenic factors are determined on the basis of specific nature of manifestation of a disease. This theory is utilized during the determination of the specific line of treatment. Definite etiopathogenesis of psoriasis is remaining obscured till today. Psoriasis is referred as T-cell mediated disease as persistent Tlymphocyte activation resulting from autoreactivity accelerated epidermal turnover resulting skin lesions. Utilizing this theory, instead of immuno-suppression, immunomodulation was done to develop co-stimulatory pathways to prevent skin damages. Ekakustha is a vata-kapha predominant tridoshaja vikara, clinically identified by asvedana mahavastu, matsasakalaupama (loss of sweating and fishery scale). Its clinical diagnosis is done by the assessment of specific vedana (pain), varna (color), akriti

(texture), prabhava (special feature), purvarupa (pro-dermal symptoms) and upadrava (complications).

Classically Khadira [Acacia catechu] is considered as the best drug of kustha. Therapeutically Khadira is also used in prameha and shvitra. Immunomodulatory role of Khadira is also reported. Commercially it is known as black catechu or kattha, i.e. extract of heartwood of Acacia catechu. In the present study aimed to clinically evaluate the therapeutic effect of khadira in Ekakustha (Psoriasis).

MATERIALS AND METHODS

40 Patients suffering from Psoriatic skin disorders were selected from OPD and IPD of Jammu Institute Of Ayurveda And Research irrespective of their sex, religion, and occupation.

PASI (Psoriasis Area Severity Index) was applied to diagnose the disease and to measure the degree of severity of the disease before treatment. Patients were included in the study following strictly based on inclusion and exclusion criteria. A dry powder of black catechu was administered to the selected patients. PASI was measured periodically after treatment.

Selection Criteria: Erythema, Indurations, and Desquamation (EID) of various extents were identified

with a positive Auspitz's and Candle grease sign. EID was measured by PASI (a continued index of Psoriasis Area Severity Index).

Inclusion Criteria: Patients satisfying more than >10.00 score of PASI and the age group of 10 to 70 years was included in this study. Only 'Plaque' type of Psoriasis was selected. Patients suffering from mild Psoriatic Arthritis were also included.

Exclusion Criteria: The patients below 10 years and above 70 years, gutted and pustule type of Psoriasis; patients with severe psoriatic arthritis; pregnant patients; patients suffering from other systemic disease and systemic failure like diabetes mellitus, renal failure, hepatic failure, etc.; and patients of below 10.00 of PASI score were excluded from this study.

Criteria for Assessment by PASI: PASI was the objective tool for the clinical evaluation of Psoriasis and also for monitoring the response of therapeutic regimen. The equation presented as follows:

$$\text{PASI score} = 0.1 (\text{Eh} + \text{Ih} + \text{Dh}) \times \text{Ah} + 0.2 (\text{Eu} + \text{Iu} + \text{Du}) \times \text{Au} + 0.3 (\text{Et} + \text{It} + \text{Dt}) \times \text{At} + 0.4 (\text{El} + \text{Il} + \text{Dl}) \times \text{Al}$$

Degree of extent evaluated as 0 = nil, 1 = mild, 2 = moderate, 3 = severe, 4 = very severe (Table 1).

Drug Dosage: Dry powder of Khadira [Acacia catechu] were administered orally to the selected patients at 3 gms twice daily at 6 AM. and 6 PM.

Duration of Study: Drug therapy was administered for one year. Drug therapy was stopped following the remission at a recognizable rate of PASI after 1 year.

Follow Up: Follow-up treatment was done for another one year. Four seasons were covered to assess seasonal variations. Follow up visit was planned every month. At each visit subjective criteria of eruptions, scaling, itching and objective criteria of PASI were observed. As Psoriasis is a disease of exacerbation and remission through long term, hence the rate of relapse was observed in terms of PASI during follow-up.

Table 1: PASI (Psoriasis Area Severity Index) Score.

| Code | h | u | t | I | E | I | D |
|-----------------------|------|-------------------|-------|-------------------|----------|------------|--------------|
| Body region | Head | Upper extremities | Trunk | Lower extremities | | | |
| Clinical significance | | | | | Erythema | Induration | Desquamation |
| Degree of Extent | | | | | 0-4 | 0-4 | 0-4 |

Graduation of four body area is done as : 1 < 10%, 2 = (10 to 29)%, 3 = (30 to 49)%, 4 = (50 to 69)%, 5 = (70 to 89)%, 6 = 90% or more. The score varies in between 0.0 to 72.0

Statistical Methods: The scores of PASI, before treatment and after treatment were expressed in percentages within a range of 72.0 to 0.0 where 72.0 was taken as 100% and 0.0 was taken as 0.0%. The difference between before and after treatment is legitimately accepted as recovery.

Thirty-six patients having psoriasis of varying degree were volunteers for treatment. Measurement of PASI scores was done initially. Again, after treatment, PASI was measured at an interval of six months and one year. All the values were expressed as mean, SD (Standard Deviation), SEM (Standard Error of Mean) and 't' value. The data were analyzed by paired 't' test. A level of P<0.05 and P<0.001 was considered as statistically significant and highly significant respectively. The level of significance was noted and interpreted accordingly.

RESULTS AND OBSERVATION

Total 40 patients were registered, among them 36 patients have completed the treatment schedule and 4 patients were left against the medical advice. Critical value has been found 2.58. This critical difference is as lower than the mean difference between before treatment and 6 months after treatment and as well as one year after treatment. Differences between treatments were quite larger than critical differences.

The result of the study showed that treatment of Khadira brought remission of Psoriasis significantly (P<0.001) within six months further following some treatment. PASI was reducing gradually at an enhanced rate after one year. The remissions were nearly less than 50% after six months of treatment. After 1 year of treatment of PASI was found at 0.0%, signifies complete cure (Table 2).

In the treatment sample, none of the patients showed evidence of relapse of a rate of (5.1% - 10.0%) score of PASI. In 88.80% (32) of cases, relapse was at a very low rate as it remains limited within (0.0%-0.1%) of PASI score. Only 11.20% (4) of patients were showing relapse within (0.1%-5.0%) of PASI score (Table 3).

| PASI Score | Mean | SD | SEM | 't' |
|-----------------------------|-------------|------|------|---------|
| Before treatment | 19.64 | 5.39 | 0.90 | |
| After 6 months of treatment | 5.78 | 3.37 | 0.56 | 19.80** |
| After 1 year of treatment | 2.28 | 2.34 | 0.39 | 22.55% |

n=36; ** = Highly significant (P<0.001) by Student's 't' test.

Table 3: Showing the incidence of relapse during follow-up in 36 patients.

| Relapse in % of PASI | No. of Patients | Percentage (%) |
|----------------------|-----------------|----------------|
| 0.0-0.1 | 32 | 88.80 |
| 0.1-5.0 | 4 | 11.20 |
| 5.1-10.0 | Nil | 00 |

DISCUSSION

All the patients were exhibiting the clinical criteria of Asvedana, Mahāvāstu and Matsaśakalaupama, had satisfied the objective criteria of erythema, indurations, and desquamation along with other confirmatory features of psoriasis. Hence, cent percent of the patient selected were suffering from Ekakustha (psoriasis). On analysis of treatment effect, result demonstrated that oral administration of Khadira showed significant recovery from Ekakustha (psoriasis).

Khadira contains tikta-kashaya rasa (bitter and astringent taste). These two rasa by the virtue of their pharmacological properties like Soshana (absorption), Vishaghnatva (anti poisonous), Kandu prashamana (reduce itching sensation), Tvakmamsa, sthirikarana (nourishment and strengthening of skin and muscle) and pidana, ropana (wound healing), Kledaupashosana (dry of exudation) causes therapeutic action of reducing edema, detoxification, restoration, antihistaminic action and contraction, healing, clearing of derbies. All these pharmacological properties as a whole are able to exert an anti-inflammatory action on the affected areas of skin, which is beneficial to cure psoriasis, especially during active lymphocyte infiltration. The principal pharmacological action of Khadira is Kusthaghna (destroy any kind of skin ailments). The essential mechanism in origin of Kustha is 'Saptadravyasangraha', i.e., accumulation and vitiation of Tridoshaja and four dhatus to create the disease. Clarification of the term 'ghna' is destroying, killing. Khadira completely inhibits the pathway of pathogenesis of Kustha by creating an unfavorable condition in dosha dushya sammurchana (destroy the causative pathological factors). Khadira is most potent drug to cure all types of Kustha including Ekakustha. Ekakustha is a vata kapha predominant skin disorder. Vata kapha clinically expresses the major features of Asvedana, mahāvastu, matsaśakalaupama including some other features like Ruksha, Kharabhava (roughness), shaitya (coldness), utseda (elevation), Parushya, Gaurava (heaviness) etc. However, the heartwood of Khadira is shita virya (cold potency) but Khadira sara (catechu) is ushna (hot potency). Agneya gura (hot and heavy) pacifies aggravated Kapha and Vata irrespectively to their pancabhautika constituents, as Kapha present (Kapha = Kshiti + Apa) and Vata (Vata = Vayu + Akasha).

Khadira contains epicatechin, fisetin, quercetin, and other important tannins. Catechu is reported to regulate cytotoxic T-cells. Fisetin is a hepatoprotective compound as it is reported to be effective in icteric viral hepatitis. Quercetin inhibits histamine release and tannin acts as the vasoconstrictor. Hence the mentioned pharmacological actions are collectively potent to counteract the inflammatory autoimmune reactions as occurs in Psoriasis.

CONCLUSION

In the present study, the curative value of Khadira [Acacia catechu (L.f.) Wild] in Psoriasis was evaluated and illustrated. In the view of results and discussion, it reveals that oral administration of Khadira is a good remedy for Ekakustha (Psoriasis). Further study can be taken to explore the probable mode of action of this drug.

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