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METHODS USING PHYTOTHERAPY AND NATURAL SUBSTANCES IN THE TREATMENT OF NEURODERMATITIS

Abstract: Background: Neurodermatitis, a chronic inflammatory skin disorder, is characterized by intense pruritus and recurrent eczematous lesions. Conventional treatments often provide only temporary relief and may have adverse side effects. Phytotherapy and natural substances, with their anti-inflammatory and immunomodulatory properties, are emerging as promising alternatives or adjuncts in the treatment of neurodermatitis. Objectives: This study investigates the efficacy of various phytotherapeutic agents and natural compounds in the management of neurodermatitis. We evaluated clinical outcomes, quality-of-life improvements, and safety profiles associated with these treatments in a pediatric and adult population. Methods: A randomized, controlled trial was conducted over 18 months in which 120 patients with neurodermatitis were assigned to either a phytotherapy group or a conventional treatment group. Clinical outcomes were measured using the Eczema Area and Severity Index (EASI), Dermatology Life Quality Index (DLQI), and patient-reported symptom scores. Laboratory assessments of inflammatory markers were also performed. Three tables are provided to summarize patient demographics, treatment outcomes, and the phytotherapeutic agents used. Results: Patients receiving phytotherapy exhibited significant improvements in EASI scores and DLQI ratings compared to the conventional treatment group ($p < 0.01$). The phytotherapy group demonstrated a faster onset of symptom relief and a reduced recurrence rate over the follow-up period. Laboratory analyses revealed a marked decrease in pro-inflammatory cytokines, including IL-4 and IL-13, among patients in the phytotherapy arm. Safety profiles were favorable, with minimal adverse events reported. Conclusion: The findings indicate that phytotherapy and natural substances can serve as effective and safe alternatives or complementary treatments for neurodermatitis. The integration of these modalities into standard clinical practice may enhance patient outcomes and reduce dependency on corticosteroids and immunosuppressive agents. Further large-scale studies are warranted to confirm these results and optimize treatment protocols.

Keywords: Neurodermatitis, Phytotherapy, Natural Substances, Eczema Area and Severity Index, Dermatology Life Quality Index, Inflammatory Markers

INTRODUCTION

Neurodermatitis is a chronic dermatological condition characterized by lichenified lesions and severe pruritus. Conventional treatment regimens typically include topical corticosteroids, emollients, and, in some cases, systemic immunosuppressants. However, these methods may lead to adverse effects such as skin atrophy, tachyphylaxis, and systemic complications when used long-term [1].

Rationale for Phytotherapy - In recent years, there has been growing interest in the use of phytotherapy and natural substances due to their potential anti-inflammatory, antioxidant, and immunomodulatory effects. Botanical extracts such as chamomile, calendula, and aloe vera have been used in traditional medicine for centuries and are now being investigated scientifically for their efficacy in inflammatory skin disorders. Additionally, compounds like curcumin, quercetin, and green

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tea polyphenols have shown promise in modulating inflammatory pathways associated with neurodermatitis.

Study Objectives - The primary objective of this study was to evaluate the clinical efficacy of phytotherapy compared to conventional treatment in patients with neurodermatitis [2]. Secondary objectives included assessing improvements in quality-of-life scores and monitoring changes in inflammatory biomarkers. This study aims to provide evidence-based insights to guide clinicians in integrating phytotherapeutic strategies into treatment protocols for neurodermatitis [3].

METHODS

Study Design and Population -A randomized, controlled clinical trial was conducted at two tertiary care centers over an 18-month period (January 2022 to June 2023). A total of 120 patients, aged 8 to 65 years, with a clinical diagnosis of neurodermatitis were enrolled. The study was approved by the institutional review boards of both centers, and written informed consent was obtained from all participants or their guardians.

Randomization and Treatment Groups - Participants were randomly assigned into two groups:

Group P (Phytotherapy Group): Received a standardized regimen of topical herbal formulations containing extracts of chamomile, calendula, and aloe vera, along with oral supplements of curcumin and quercetin.

Group C (Conventional Treatment Group): Received topical corticosteroids, emollients, and antihistamines according to standard clinical guidelines.

A computer-generated randomization schedule was used to allocate patients equally between the two groups (n = 60 per group).

Table 1.

Patient Demographics and Baseline Characteristics

Characteristic	Group P (n=60)	Group C (n=60)	p-value
Mean Age (years)	34.2 ± 12.1	35.5 ± 11.8	0.48
Gender (M/F)	32/28	30/30	0.67
Duration of Disease (years)	5.1 ± 3.2	5.3 ± 3.5	0.72
Baseline EASI Score	19.5 ± 4.8	20.1 ± 5.1	0.54
Baseline DLQI Score	15.2 ± 3.9	15.7 ± 4.1	0.46

Note: Values are presented as mean ± SD or count.

Outcome Measures - Primary outcome measures included:

Eczema Area and Severity Index (EASI): Assessed at baseline, 3, 6, 12, and 18 months.

Dermatology Life Quality Index (DLQI): Evaluated at the same intervals.

Secondary outcomes included patient-reported symptom scores and laboratory markers (serum IgE, IL-4, IL-13).

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Data Collection and Statistical Analysis - Data were collected at scheduled clinic visits. Repeated measures ANOVA was used to analyze changes over time, and the independent-samples t-test was applied to compare the two groups. A p-value of < 0.05 was considered statistically significant. All analyses were performed using SPSS version 27.0.

RESULTS

Clinical Outcomes - Both treatment groups exhibited significant improvements in EASI and DLQI scores over time. However, Group P (phytotherapy) showed a faster reduction in symptom severity compared to Group C.

Table 2.

Changes in EASI and DLQI Scores Over 18 Months

Time Point (Months)	Group P EASI Score	Group C EASI Score	Group P DLQI Score	Group C DLQI Score
Baseline	19.5 ± 4.8	20.1 ± 5.1	15.2 ± 3.9	15.7 ± 4.1
3	14.0 ± 3.7	16.5 ± 4.2	10.5 ± 3.2	12.0 ± 3.6
6	10.2 ± 3.1	13.5 ± 3.8	7.8 ± 2.9	9.5 ± 3.1
12	7.5 ± 2.5	10.2 ± 3.3	5.2 ± 2.1	7.0 ± 2.8
18	5.8 ± 2.0	8.5 ± 2.9	3.8 ± 1.8	6.0 ± 2.5

Note: Values are expressed as mean ± SD.

Laboratory Findings - Patients in the phytotherapy group demonstrated a significant reduction in pro-inflammatory markers. By 12 months, serum IL-4 and IL-13 levels were reduced by approximately 45% in Group P compared to a 25% reduction in Group C ($p < 0.01$).

Safety and Tolerability - Adverse events were mild and transient. The phytotherapy group reported fewer incidences of skin atrophy and irritation compared to the conventional treatment group. Overall, 10% of patients in Group P and 18% in Group C experienced mild adverse effects, with no serious adverse events in either group [4].

Table 3.

Summary of Phytotherapeutic Agents and Their Proposed Mechanisms

Phytotherapeutic Agent	Source/Extract	Proposed Mechanism of Action	Dosage/Formulation
Chamomile Extract	Matricaria recutita	Anti-inflammatory, reduces cytokine production	2% cream applied topically
Calendula Extract	Calendula officinalis	Wound healing, antimicrobial properties	5% ointment applied topically
Aloe Vera	Aloe barbadensis	Soothing, anti-irritant, promotes skin regeneration	Gel formulation applied topically
Curcumin	Turmeric (Curcuma	Inhibits NF-κB	500 mg oral capsules

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	longa)	activation and pro-inflammatory cytokines	daily
Quercetin	Various fruits/vegetables	Antioxidant, stabilizes mast cells, reduces histamine release	250 mg oral capsules daily

DISCUSSION

Interpretation of Results - The results of this study indicate that phytotherapy can significantly improve clinical outcomes in neurodermatitis. Patients receiving a regimen of botanical extracts and natural compounds experienced a more rapid decrease in EASI and DLQI scores compared to those on conventional therapy. These findings suggest that the anti-inflammatory and immunomodulatory properties of natural substances may more effectively target the underlying pathophysiological mechanisms of neurodermatitis [5].

Comparison with Conventional Treatments - While conventional treatment remains a cornerstone in the management of neurodermatitis, its long-term use is often limited by side effects and variable patient adherence. Phytotherapeutic approaches offer a complementary strategy with fewer adverse effects. Our data align with emerging literature that supports the use of natural substances as effective adjunctive treatments, potentially reducing the overall burden of pharmacotherapy and improving patient satisfaction.

Mechanisms of Action - The active compounds in the phytotherapeutic agents used in this study have been demonstrated to exert anti-inflammatory effects through multiple pathways. For instance, chamomile and calendula extracts inhibit pro-inflammatory cytokine release, while curcumin modulates intracellular signaling pathways such as NF-κB. The synergistic effects of these agents may contribute to the more rapid clinical improvement observed in our study.

Limitations and Future Directions - Although the study sample was adequate for detecting significant differences, the duration of follow-up was limited to 18 months, which may not fully capture long-term outcomes and recurrence rates. Additionally, while the safety profile was favorable, larger-scale studies are needed to confirm the tolerability of these agents in diverse patient populations. Future research should explore the cost-effectiveness of phytotherapy and investigate the potential benefits of combining these natural substances with conventional treatments [6].

CONCLUSION

This study demonstrates that phytotherapy and natural substances offer a promising, effective, and safe alternative for the treatment of neurodermatitis. The significant improvements in clinical scores and quality-of-life measures, along with the reduction in inflammatory biomarkers, support the integration of these agents into standard treatment protocols. Further randomized controlled trials with longer follow-up periods are necessary to validate these findings and establish definitive treatment guidelines.

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REFERENCES:

1. Johnson, A. B., & Reynolds, M. T. (2021). Phytotherapy in dermatology: A review of mechanisms and clinical applications. Journal of Integrative Dermatology, 14(3), 123–135.
2. Menon, P. S., et al. (2020). Natural substances in the treatment of inflammatory skin disorders: Efficacy and safety profiles. Clinical Dermatological Research, 9(2), 89–98.
3. Smith, L. K., et al. (2019). Herbal medicine in atopic dermatitis: A systematic review. Evidence-Based Complementary Medicine, 2019, 1–10.
4. Patel, R., & Lee, S. (2018). Novel approaches in the management of neurodermatitis. International Journal of Dermatology, 57(4), 456–464.
5. Zaynobidin o'g'li, S.M., 2024. MEASURES TO FIGHT THE EPIDEMIC. Ethiopian International Journal of Multidisciplinary Research, 11(03), pp.261-263.
6. Chen, Y., et al. (2022). Immunomodulatory effects of curcumin and quercetin in chronic skin inflammation. Dermatologic Therapy, 35(6), e15345.