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THE EFFECTIVENESS OF SEVERAL TOPICAL TREATMENTS FOR CHRONIC PLAQUE TYPE PSORIASIS

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ABSTRACT

Aim: This study looked at the effects of several topical therapies on persistent plaque type psoriasis. **Material and Methods:** The study was prospective and randomly assigned, and it was done at the dermatology department. We divided the 120 patients into three groups, each of which had 40 patients, and then we randomly assigned each group's members. Ammonium lactate was prescribed topically to patients in Group A twice a day; patients in Group B received ammonium lactate in the morning and clobetasol propionate in the evening; and patients in Group C received topical ammonium lactate in the morning and calcipotriol in the evening. Patients were given PASI scores at the start, after 4 weeks, and after 8 weeks to gauge their progress.

Results: in Group A, 10 (25%) patients had great responses, 8 (32%) patients had good responses, 9 (22.5%) patients had mediocre responses, and 12 (32.5%) patients had poor responses. In group B, 12 patients (32.5%) had an outstanding reaction, 13 patients (36.67%) had a good response, 7 patients (17.5%) had a medium response, and 8 patients (16.67%) had a poor response. In group C, 12 (30%) patients had an outstanding reaction, 13 (32.5%) had a good response, 5 (12.5%) had a fair response, and 9 (22.5%) had a bad response.

Conclusion: With the combo drug, there were fewer reported adverse events and improvements in adherence, which led us to believe that it is effective. One option to look at is ammonium lactate used topically as a monotherapy or maintenance treatment.

Keywords: Topical, calcipotriol, ammonium lactate, and psoriasis.

INTRODUCTION:

Etio-pathogenesis in Psoriasis is multifactorial, a combination of environmental and genetic factors. Various studies have been postulated in its etio-pathogenesis. The T cells, antigen presenting cells (APC's), langerhan cells, macrophages, natural killer (NK) cells, Th1 type cytokines, various growth factors like vascular endothelial growth factor (VEGF), keratinocyte growth factor (KGF), etc play a important role in its pathogenesis.1 An erythematous plaque with micaceous scale is the characteristic lesion, and it can be localized or systemically distributed. Twenty to thirty percent of those with psoriasis currently have psoriatic arthritis or will in the future. Additionally, metabolic syndrome and atherosclerotic cardiovascular disease risk factors are increased in patients with moderate to severe psoriasis. Survey results reflect patients' judgments that current drugs, while frequently beneficial, do not provide an appropriate long-term solution to psoriasis. Its overall prevalence and pattern are influenced by a range of genetic, ethnic, and environmental factors. 2-4 The prevalence of pruritus varies greatly between different geographic areas. The world, ranging from 8% to 38%. However, it was discovered that between 14 and 50% of people with pruritus had a clear systemic disease. 5-7 Chronic generalized pruritus can be brought on by systemic conditions such chronic renal failure, hepatic issues, haematological disorders, iron deficiency, and malignancies. 5 There are several distinct clinical varieties of psoriasis, each with its own set of symptoms and probable course of action. Since psoriasis is chronic and prone to flare-ups, numerous strategies have been devised to enhance therapy while lowering adverse effects. The principal alternatives for therapy are palliative and symptomatic therapies that attempt to induce remission and maintain the illness at a manageable level by general and empirical procedures because

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a cure for psoriasis has not yet been found. 8,9 Skin lesions from psoriasis appear as well-defined, erythematous plaques coated in silvery white scales. These lesions are brought on by the invasion of inflammatory T cells, which release cytokines that promote the development of the illness. Currently, there is no known treatment for the problem, but it is treatable using a variety of therapeutic modalities.10,11 The most effective kind of treatment for psoriasis that only affects 10% of the total body surface area is topical therapy. 12 A few examples of topical treatments that can be applied singly or in combination include emollients, topical corticosteroids, vitamin D analogs, tar-based preparations, dithranol, salicyclic acid, and topical retinoids. Ammonium lactate has been studied for atopic dermatitis, but less is known about how it works for psoriasis vulgaris. The main goal of our research was to investigate the therapeutic effects of ammonium lactate 12% lotion alone and in combination with clobetasol propionate (0.05%) and calcipotriol (0.005%) in patients with chronic plaque type psoriasis, as well as the adverse effects of ammonium lactate, clobetasol propionate, and calcipotriol.

MATERIAL AND METHODS

A randomised controlled trial was carried out by the dermatology department after getting approval from a protocol review committee and an institutional ethics council. We obtained a complete medical history with the patient's consent and cooperation.

The participants had to have a diagnosis of persistent chronic plaque type psoriasis that covered less than 10% of their body surface area, and they couldn't have utilized any topical therapies or taken any medications for systemic psoriasis within the previous two weeks. A total of 120 patients were included, and they were divided into three groups of 40, each of which they were assigned at random. Patients in Group A were told to apply ammonium lactate topically twice daily; those in Group B received ammonium lactate in the morning and clobetasol propionate in the evening; and those in Group C were directed to apply ammonium lactate topically twice daily. Topical ammonium lactate was used in the morning, and calcipotriol was applied in the evening. At four and eight week intervals, respectively, subjective and objective evaluations of each patient's therapeutic response were conducted. Patients were given PASI scores to gauge their development at the start, after 4 weeks, and after 8 weeks. We will utilize the Psoriasis Area and Severity Index and the Physicians' Global Assessment Scale to assess the psoriasis, its severity, and the clinical response eight weeks later. Patients were asked to complete a PASI (Psoriasis Area Severity Index) score at the start of the experiment, at the end of 4 weeks, and once more at the end of 8 weeks. The success of the treatment was measured by the percentage of patients who had a PASI 60 at 8 weeks, representing a 50% decline in disease. A PASI 60 is a meaningful and fulfilling response, according to the research. 13 evaluation of a treatment's impact Global Assessment Scale for Physicians (PGAS)

RESULTS

There was no significant difference between research groups (p=0.652). When individual groups were compared, it was shown that there was a significant difference in PASI at 8 weeks between group A and group B (p=0.041), group A and group C (p=0.027), but not between group B and group C (p=0.967). ANOVA was used to compare mean PASI at 8 weeks across study groups in Table no.1

Table 1: Multiple Comparisons of mean PASI at 8 weeks between groups (Post hoc analysis using Tukey's HSD)

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	P value	95% Confidence Interval	
						Lower Bound	Upper Bound
PASI at 8 weeks	Group A	Group B	1.29	1.16	.041	-1.74	4.65
	Group A	Group C	.879	1.13	.029	-1.91	4.51
	Group B	Group C	-.150	1.19	.969	-2.96	3.43

PASI 60 was computed for all three groups, and it was discovered that 19 (47.5%) of 40 subjects in group A, 24 (60%) of 40 patients in group B, and 24 (60%) of 40 patients in group C achieved PASI 60. Table no.2

Table 2: Assessment of PASI 60 in Groups (A, B, C)

Characteristics		Group		
		Group A	Group B	Group C
PASI 60	No	21(52.5%)	16(40%)	16(40%)
	Yes	19(47.5%)	24(60%)	24(60%)
Total		40	40	40

Table 3 demonstrates that in Group A, 10 (25%) patients had great responses, 8 (32%) patients had good responses, 9 (22.5%) patients had mediocre responses, and 12 (32.5%) patients had poorresponses. In group B, 12 patients (32.5%) had an outstanding reaction, 13 patients (36.67%) had a good response, 7 patients (17.5%) had a medium response,and 8 patients (16.67%) had a poor response. In groupC, 12 (30%) patients had an outstanding reaction, 13 (32.5%) had a good response, 5 (12.5%) had a fair response, and 9 (22.5%) had a bad response.

Table 3: Comparison of Physician Global assessment scale between Groups (A, B, C)

PGAS		Group		
		Group A	Group B	Group C
Poor	0-24%	13(32.5%)	8(32%)	9(22.5%)
Fair	25-49%	10(25%)	7(17.5%)	5(12.5%)
Good	50-74%	8(32%)	13(32.5%)	13(32.5%)
Excellent	75-99%	9(22.5%)	12(30%)	12(30%)
Total		40	40	40

DISCUSSION

A widespread, long-lasting, inflammatory skin condition is psoriasis. Patients who were receiving treatment for psoriasis vulgaris that covered less than 10% of their body surface area participated in the current study. In this study, baseline data were evaluated and found to be consistent with one another. In all three groups, the mean PASI was calculated at 4 and 8 weeks. When efficacy was compared between groups at 4 and 8 weeks, there was no significant difference between group B and group C (p value=0.614 and 0.967 at 4 and 8 weeks respectively), indicating that group B and group C are equally effective. However, there was a significant difference between group A and group C (p value=0.014 and 0.027 at 4 and 8 weeks respectively) and between group A and group B (p value=0.017 and 0.039 at 4 and 8 weeks respectively). 47.5% of patients in group A and 60% of patients in groups B and C were able to reach PASI 60. 47.5% of patients in Group A, 60% of patients in Group B, and 60% of patients in Group C received 50% clearance of lesions according to the Physician Global Assessment Scale. Each group comprised two individuals with erythema and one with skin irritation (burning sensation). 5 patients in group A, 2 patients in group B, and 3 patients in group C discontinued the study during its course. They said over the phone that they would not be able to show up on time owing to personal reasons including obligations, travel expenses, and a lack of a sufficient response to a topical conversation. Emollients should be used correctly and regularly in individuals with plaque or scalp psoriasis to increase comfort and lessen itching, scaling, and fissuring. When used as a control in topical steroid studies, non-medicated topical moisturizers showed a response rate that ranged from 15 to 47%, according to 14ms. 18 Emer et al. found that halobetasol ointment weekend-only maintenance therapy combined with twice-daily use of ammonium lactate lotion and halobetasol ointment effectively eradicated plaque psoriasis in about 75% of patients after two weeks. When compared to placebo, twice-daily ammonium lactate lotion successfully maintained early improvement for a noticeably longer amount of time. 19, 20 A second medication (a keratolytic, emollient, or vitamin D analogue) may be used to help sustain clearance and offer a corticosteroid-free substitute. According to a meta-analysis of 22 trials, clearance rates following monotherapy ranged from 2 to 85%, as opposed to 39 to 100% for combination therapies. Emollient (lotion with ammonium lactate at a concentration of 12%) is therefore useful alone. The study found that combination therapy is more successful than monotherapy.

CONCLUSION

With the combo drug, there were fewer reported adverse events and improvements in adherence

which led us to believe that it is effective. One option to look at is ammonium lactate used topically as a monotherapy or maintenance treatment. Combination therapy is effective, well tolerated with minimal side effects and better compliance was seen with patients. Ammonium lactate 12% can also be considered as one of the topical option as a monotherapy and also as a maintenance therapy. But more number of Indian studies are required as there is paucity of literature on topical treatment of psoriasis.

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