Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr UGC approved journal no. 63854

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805 Index Copernicus value = 76.77

Original Article

To evaluate the impact of various topical therapies on persistent plaque psoriasis

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ABSTRACT:

Aim: To evaluate the impact of various topical therapies on persistent plaque psoriasis. **Methods:** A total of 300 individuals were recruited and split into three groups of 100 patients each. Patients in Group A were instructed to apply ammonium lactate twice daily, while patients in Group B were instructed to apply ammonium lactate in the morning and clobetasol propionate in the evening, and patients in Group C were instructed to apply topical ammonium lactate in the morning and calcipotriol in the evening. Each patient was invited to return at four and eight week's intervals to assess therapy response both subjectively and objectively. **Results**: According to the physician global evaluation scale, 38 percent of patients in Group A had great responses, 16 percent had good responses, 20 percent had acceptable responses, and 26 percent had poor responses. In group B, 34 percent of patients had an exceptional reaction, 30 percent had a good response, 16 percent had a medium response, and 20 percent had a poor response. In group C, 30 percent of patients had an exceptional reaction, 29 percent had a good response, 21 percent had a medium response, and 20 percent had a bad response. **Conclusion**: Novel understandings of the aetiology of psoriasis have allowed for the discovery of new treatment targets. Topical treatments with specific targets are being developed and evaluated. The introduction of novel compounds and drug delivery methods will greatly broaden the therapeutic arsenal for the treatment of psoriasis. Topical treatments are the foundation of psoriasis care.

Keywords: Psoriasis, Topical Therapy, Corticosteroids, Ammonium lactate, Clobetasol, calcipotriol.

Received: 11 July, 2018 Accepted: 16 August 2018

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This article may be cited as: Lokhande AJ. To evaluate the impact of various topical therapies on persistent plaque psoriasis. J Adv Med Dent Scie Res 2018;6(9):149-151.

INTRODUCTION

Psoriasis is a skin disorder characterised by red, dry, crusty areas of skin covered with silvery scales. Psoriasis etiopathogenesis is complex, including both environmental and genetic variables. Several investigations have been conducted to investigate its etiopathogenesis. T cells, antigen-presenting cells (APCs), langerhan cells, macrophages, natural killer (NK) cells, Th1 type cytokines, and growth factors such as VEGF, KGF, and others all play essential roles in its pathogenesis. [1]

The prevalence of psoriasis in India ranges from 0.44 percent to 2.8 percent.[2] The majority of these individuals have mild-to-moderate illness and may be treated with topical medications, which have the potential to offer therapeutic effectiveness while also limiting the detrimental effects of systemic therapy to the target area. In India, the estimated number of psoriatic patients is 2.3 percent. [3]

Topical agents may be used on a sporadic or continuous basis. More strong drugs must be given briefly to allow for response, and patients should subsequently be taught to take these medications occasionally for long-term care. This method may lower the chance of adverse consequences. Patients who need continuing topical treatment should be counselled to use the least powerful drug that allows for disease management, or they should be switched to a topical agent with the lowest long-term risk. All patients receiving topical medication should be evaluated on a regular basis to detect the emergence of adverse effects as soon as possible.[4]

To the best of our knowledge, ammonium lactate has been examined for atopic dermatitis, but just a few papers on its use in psoriasis vulgaris are known.

This study is being conducted to investigate the effect of ammonium lactate 12 percent lotion as monotherapy and in combination with clobetasol propionate (0.05 percent) and calcipotriol (0.005 percent) in patients with chronic plaque type psoriasis, as well as the side effects of ammonium lactate, clobetasol propionate, and calcipotriol.

METHODS AND MATERIALS

The investigation was conducted on individuals who presented to the dermatology department with chronic plaque type psoriasis vulgaris. A total of 300 individuals were recruited and split into three groups of 100 patients each. Patients in Group A were instructed to apply ammonium lactate twice daily, while patients in Group B were instructed to apply ammonium lactate in the morning and clobetasol propionate in the evening, and patients in Group C were instructed to apply topical ammonium lactate in the morning and calcipotriol in the evening. Each patient was invited to return at four and eight weeks intervals to assess therapy response both subjectively and objectively.

Patients with persistent chronic plaque type psoriasis covering less than 10% of body surface area and who had not applied topical for the previous two weeks or used systemic psoriasis medicines for the previous three months were included after receiving ethical approval. During the research period, the chosen patients' PASI (Psoriasis Area Severity Index) scores were obtained at baseline, 4 weeks, and 8 weeks. The success of the treatment regimen was determined by the number of patients who achieved PASI 50 (i.e. a 50% decrease in disease) at the conclusion of the 8-week trial.

RESULTS

There was no significant difference between study groups. Furthermore, 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, group A and group C, but not between group B and group C.

Table 1: PASI assessment of patients clinically at baseline, at 4 weeks and after 8 weeks

Group	Baseline	Week 4	Week 8
Group A	7.01	6.32	5.89
Group B	7.21	6.44	5.66
Group C	7.33	6.81	5.51

Table 2: PASI 50 effectivity of all regimen.

Characteristics		Group		
		Group A	Group B	Group C
PASI 50	Yes	38	59	67
	No	62	41	33

Table 3: PGAS assessment of all the three groups

PGAS		Groups		
		Group A	Group B	Group C
Poor	0-24%	26	20	20
Fair	25-49%	20	16	21
Good	50-74%	16	30	29
Excellent	75-99%	38	34	30
		100	100	100

According to the physician global evaluation scale, 38 percent of patients in Group A had great responses, 16 percent had good responses, 20 percent had acceptable responses, and 26 percent had poor responses. In group B, 34 percent of patients had an exceptional reaction, 30 percent had a good response, 16 percent had a medium response, and 20 percent had a poor response. In group C, 30 percent of patients had an exceptional reaction, 29 percent had a good response, 21 percent had a medium response, and 20 percent had a bad response.

DISCUSSION

Psoriasis comes in a variety of forms, including chronic plaque psoriasis, guttate psoriasis, pustular psoriasis and its variations, inverse flexural psoriasis, exfoliative psoriasis, and regional psoriasis (involving scalp, napkin area, palms and soles). In our study, patients in Group A were instructed to apply ammonium lactate twice daily, while patients in Group B were instructed to apply ammonium lactate in the morning and clobetasol propionate in the evening, and patients in Group C were instructed to apply topical ammonium lactate in the morning and calcipotriol in the evening. Chronic plaque psoriasis (psoriasis vulgaris) is the most prevalent kind, accounting for the vast majority of cases. Psoriasis is characterised by well-circumscribed erythematous plaques with silvery white scales in skin lesions, which are caused by an invasion of

inflammatory T cells that produce disease-stimulating cytokines. Although there is no cure, many therapy alternatives, employed alone or in combination, may successfully manage the condition. [5] Topical therapy is most effective for psoriasis that affects less than 10% of total body surface area. 4 Emollients, topical corticosteroids, vitamin D analogues, tar-based preparations, dithranol, salicyclic acid, and topical retinoids may be used alone or in combination with other medicines.

Ammonium lactate lotion contains lactic acid, cetyl alcohol, glycerin, magnesium aluminium silicate, water, light mineral oil, propylene glycol, methyl and propyl parabens, laureth-4, and polyoxyl 40 stearate.[6,7] When applied to the skin, it has been found to generate a stimulatory response that increases epidermal thickness and moisture as well as the number of granular layers and underlying dermal cells. Lactic acid is an alpha-hydroxy acid that, when applied to the skin, may serve as a humectant. Topical Calcipotriol 0.005% is an efficient and well-tolerated therapy for psoriasis. It inhibits keratinocyte growth while increasing differentiation. Vitamin D receptors situated in the nucleus of keratinocytes mediate these activities. It also slows T-cell proliferation and reduces ICAM-1 expression, acting as an immunomodulator. [8] Clobetasol propionate 0.05 percent inhibits phospholipase A2 and so has anti-inflammatory, anti-proliferative, and immunosuppressive properties. [9] Clobetasol propionate 0.05 percent inhibits phospholipase A2 and so has anti-inflammatory, anti-proliferative, and immunosuppressive properties. Non-medicated topical moisturisers had a response rate ranging from 15 to 47 percent when used as a control in topical steroid studies, according to 10 guidelines of care for the therapy of psoriasis and psoriatic arthritis. [10] Their composition varies greatly throughout this large range. Emollients used as a monotherapy may improve skin hydration, barrier function, as well as proliferation and differentiation markers in patients with psoriasis, according to two small clinical trials involving 111 patients. However, the clinical response showed only a slight symptomatic improvement of psoriasis. [11,12]

CONCLUSION

Novel understandings of the aetiology of psoriasis have allowed for the discovery of new treatment targets. Topical treatments with specific targets are being developed and evaluated. The introduction of novel compounds and drug delivery methods will greatly broaden the therapeutic arsenal for the treatment of psoriasis. Topical treatments are the foundation of psoriasis care. They are completely safe and well tolerated by patients. Combination treatment is effective, well tolerated with little side effects, and improves patient compliance. Ammonium lactate 12% is another topical alternative that may be used as a monotherapy or as a maintenance treatment.

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