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STUDY OF GLYCOLIC ACID PEEL IN SUPERFICIAL NAIL PLATE ABNORMALITIES

Dermatology

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ABSTRACT

Background: Superficial nail plate abnormalities include conditions which produce nail surface changes such as trachyonychia, pitting and ridging. Mostly, this is a neglected area due to paucity of treatment options. Glycolic acid peeling has been reported to be effective in such cases.
Aim: To assess safety and efficacy of 70% glycolic acid in patients with superficial nail plate abnormalities.
Materials and Methods: After taking detailed history, patients fulfilling the inclusion criteria were enrolled in the study. 70% glycolic acid was used for total eight visits, weekly for four weeks followed by fortnightly for next eight weeks. At 12 weeks, the response was assessed objectively by Nail Surface abnormality Index (NSI) and subjectively by Visual Analogue Scale (VAS) based on patients perception, and by Physician's Global Assessment (PGA) scores.
Results: A total of 15 patients were enrolled, one dropped out and 14 patients (five males, nine females, total 38 nails) were included in the final analysis. The mean NSI score declined from 5.1 to 1.8 at the end of 12 weeks. The VAS declined from 6.1 to 2.1. According to PGA score, 50% showed good improvement, 36% showed moderate improvement and 14% responded poorly. One patient suffered leuconychia in one nail post peel.
Conclusion: 70% Glycolic acid peel was found to be safe and efficacious modality for treatment of superficial nail plate abnormalities.

KEYWORDS

Glycolic Acid, pitting, trachyonychia

INTRODUCTION

Superficial nail plate abnormalities like pitting, ridging, discoloration can produce varying psychological effects ranging from complete ignorance or acceptance of the condition at one end to a gross lack of self confidence and a feeling of depression.[1]

AIM & OBJECTIVES

To assess safety and efficacy of 70% glycolic acid in patients with superficial nail plate abnormalities.

METHODOLOGY

Study has been conducted at a tertiary care hospital, South Gujarat for a period of 3 months.

The inclusion criteria were patients with superficial nail plate abnormalities and willing to give informed valid consent. The exclusion criteria were patients with Infective conditions, Heavy manual worker, Pregnancy / Lactation and with unrealistic expectations.

After taking detailed history, patients fulfilling the inclusion criteria were enrolled in the study. 70% glycolic acid was used for total eight visits, weekly for four weeks followed by fortnightly for next eight weeks. At 12 weeks the response was assessed objectively by Nail Surface abnormality Index (NSI) and subjectively by Visual Analogue Scale (VAS) based on patients perception, and by Physician's Global Assessment (PGA) scores.

Nail Surface abnormality Index (NSI)

Nail is divided into 4 quadrants and each quadrant is scored for 4 parameters, which includes pitting, discoloration, longitudinal ridging and horizontal ridging (each parameter is given a score of 1 if present). For single nail, Minimum Score can be 0 and Maximum Score can be 16.[2]

Physician's Global Assessment (PGA) scores

It was scored by Physician based on clinical assessment and evaluation of photographic records. (>50% improvement= Good response, 25-50%= Moderate response, <25%= Poor response)

Visual Analogue Scale (VAS)

The patient was asked to score each affected nail on a scale of 0–10 (0 being normal nail and 10 being worst possible score).

RESULTS & DISCUSSION

A total of 15 patients were enrolled, one dropped out and 14 patients (five males, nine females, total 38 nails) were included in the final analysis. Average Age was 33.4 years. Male : Female Ratio was 1: 1.8 (Male 5 , Female 9). The mean NSI score declined from 5.1 to 1.8 at the end of 12 weeks. The VAS declined from 6.1 to 2.1. According to PGA score, 50% showed good improvement, 36% showed moderate improvement and 14% responded poorly. One patient suffered leuconychia in one nail post peel.

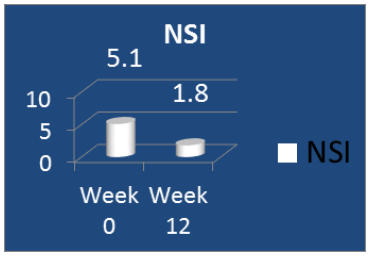

Chart 1: NSI : Nail Surface Abnormality Index

The NSI decreased from 5.1 to 1.8 over 12 weeks. There was improvement of 64.7 % in NSI

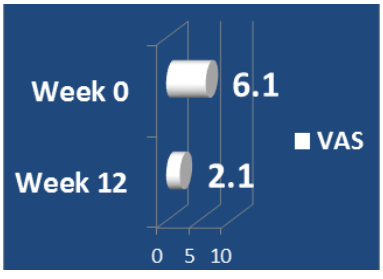

Chart 2: Visual Analog Scale

The VAS decreased from 6.1 to 2.1 over 12 weeks. There was improvement of 65.6 % in VAS

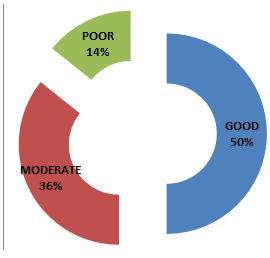

Chart 3: Physician Global Assesment

According to PGA score, 50% showed good improvement, 36% showed moderate improvement and 14% responded poorly.

DISCUSSION

Having beautiful nails is one of the most ancient of human desires. The history of nail lacquers dates back to Egyptian and Chinese civilisations. Superficial nail plate abnormalities can produce varying psychological effects ranging from complete ignorance or acceptance of the condition at one end to a gross lack of self-confidence and a feeling of depression.

This study was undertaken due to lack of tenable therapeutic options for superficial nail plate abnormalities. The precise mechanism of the effect of peels on nail plate is not known. On skin, chemical peels act by producing a loss of stratum corneum; inducing dermal remodeling; and stimulating the germinative layer, ultimately leading to skin rejuvenation.[3]

On serial evaluation of clinical photographs, we could see that most of the improvement started proximally, growing distally as the nail plate grew. We can hypothesise that though these peels were causing exfoliation of surface irregularities of the nail plate; they were also inducing improvement by possible effects on the nail matrix. The mechanism of this action on matrix remains unexplained. It could be because of cellular signals mediated by protein denaturation and shedding of onychocytes induced by peeling. It is also possible that the peeling agent itself was able to penetrate and influence the proximal matrix. The exact mechanism, however, remains to be elucidated with further studies.

CONCLUSION

70% glycolic acid peel was seen to be effective medium depth peel for the correction of superficial nail abnormalities without any significant untoward side effects. There were no specific conditions that responded worse or better. A larger sample size is warranted to arrive at more definitive conclusions. Medium depth peels offer an easy, quick and inexpensive therapeutic modality sans any systemic side effects.

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