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KERATOLYTIC AND ANTI-INFLAMMATORY ACTION OF SALICYLIC ACID IN PATIENTS WITH SEBORRHEIC DERMATITIS ASSOCIATED WITH PSORIASIS.

Dr. Wilfredo José Molina Wills[1], Dr. Vanessa Rodriguez[2]
1. Former researcher in the department of physiology of the school of medicine of the University of the Andes Venezuela, guest researcher of the chair of histology of the school of medicine of the University of the Andes Venezuela.
2. Private practice, Venezuela.

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Corresponding author*
Dr. Wills W. J. M.*

ABSTRACT

Objectives: The objective was to evaluate the keratolytic and anti-inflammatory action of salicylic acid in two reported cases of patients with seborrheic dermatitis associated with psoriasis. **Methods**: Clinical photographs of the frontal region and retro headset were taken with a digital camera olimpus SP570UZ with master software 2.0. The images obtained both in the initial phase of the study and at the 24 hours of treatment were transferred and stored on a 4-core Sansung computer. Image J software was used to measure the area selected for the study in both cases. This measurement was made in pixels for the photographic region under study. Aspects such as the presence of erythematous scales, inflammatory zones, hyperkeratosis, or scabs were evaluated before and after treatment. **Results:** Case 1 showed a 48.89% reduction in the affected area after 24 hours of treatment. Case 2 showed a 52.98% reduction at 24 hours of treatment. **Conclusions:** The keratolytic and anti-inflammatory action of salicylic acid was evident in this case report.

INTRODUCTION

Salicylic acid is a beta-hydroxy acid, its keratolytic and antimicrobial activity has been reported. In addition to its function of breaking epidermal intercellular bridges, it has a preventive action as it prevents contamination by opportunistic bacteria and fungi.

Its potential anti-inflammatory action has been described. In concentrations of 5 to 10 % acts as keratolytic promoting the fall of the cornea layer and epidermal flaking, in lower concentrations, i.e. 1 to 3 % acts as keratoplastic favoring the regeneration of the cornea layer and normalizing keratization (Cuellar, et al 2008).

It is fat-soluble and can be mixed with epidermis fat and acts as an adjuvant facilitating the penetration of antibiotics (Clark, 2007).

Salicylic acid has an anti-pruriginous action on the scalp, thus being an element of choice in the treatment of pathologies such as

seborrheic dermatitis and psoriasis of the frontal region and head in general (Draelos, 2005).

The objective of this study was to evaluate the results of the application of salicylic acid among other components in shampoo presentation on an affected area of the scalp in reported patients and carriers of a dermatological picture of seborrheic dermatitis associated with psoriasis.

Methods.

In this study, two cases of patients with psoriasis-associated seborrheic dermatitis were reported.

Study of the affected area.

The scalp area of the frontal region was selected in both cases. Aspects such as the presence of erythematous plaques, inflammatory area, hyperkeratosis, or scabs were evaluated before and after treatment.

Clinical photography

A digital camera was used Olympus SP570UZ with master software 2.0. The images obtained both in the initial phase of the study and at the 24 hours of treatment were transferred and stored on a 4-core Sansung computer. For both cases studied, the auto-dial adjustment option was selected. In this way, the camera selects the optimal way to take the photo shot.

Focus and exposure position.

Horizontal and vertical focus orientations as well as exposure were maintained during initial and post-treatment for both cases studied. The sequential firing speed was fast at 13.5 frames per second.

Analysis of the affected area.

Image J software was used to measure the area selected for the study in both cases. This measurement was made in pixels for the photographic region under study. This method allowed us to analyze the amount of area affected and compare it before and after treatment by evaluating tissue changes if there are any during the application of the formula containing in its salicylic acid composition. In this way, it was possible to quantify the amount of area where the inflammatory process, erythematic, or scab formation persists.

Physicochemical and microbiological analysis of the formula. Before its application, the shampoo formula owned by Molina Body Health was subjected to a microbiological and physicochemical study carried out by the center of microbiological research applied at the University of Carabobo Venezuela. The pre-use physicochemical analysis in treated cases was dimensional, pH 6.3 being the established regulations, and values of 3-10. The previous microbiological analysis was: UFC/ml escherichia coli units absent, pseudomona aeruginosa 0, fungus < 1, yeasts <1, and staphylococcus aureus absent. These previous results allow framing the product within the established standards and values.

Case 1

Female patient of 60 years old, weighing 74 kilograms and a height of 1.60 meters. Among the symptoms referred by the patient, we find headache, persistent feeling of tightness of the scalp especially of the frontal region and generalized itching on the scalp, orbital region, ears, and part of the neck. Disseminated erythematic of the scalp, frontal region, ear area, nasal groove, superciliary arches, and to a lesser degree in the neck region was observed at the clinical examination. Similarly, an inflammatory picture was observed especially in the frontal region with the presence of scales and crusts compatible with psoriasiform hyperplasia that was confirmed by the dermatologist Figure 1.

Fig 1: the initial stage where the inflammatory picture with erythema is observed in the frontal region adjacent to the scalp.

Fig 2: Photograph of the frontal region adjacent to the scalp after 24 hours of treatment. A significant decrease in inflammatory pictures and erythema is observed.

Fig 3: Retro and supra auricular region before treatment. Diffuse inflammatory zones and disseminated erythema with regions of apparent hyperkeratosis are observed.

Fig 4. The decreased inflammatory process, erythema and hyperkeratosis in retro and supra auricular area at 24 hours of treatment.

Case 2.
42-year-old female patient with seborrheic dermatitis and generalized psoriasis on the scalp and frontal region. Presence of hyperkeratosis and crusty areas. Presence of areas of erythema and inflammation in both the skull and frontal and disseminated dandruff. Pruritus in scalp and ear region and bilateral superciliary area.

Fig 5: Inflammatory picture is seen throughout the frontal area, erythema, and signs of hyperkeratosis as well as dandruff detachment in the hair insertion area.

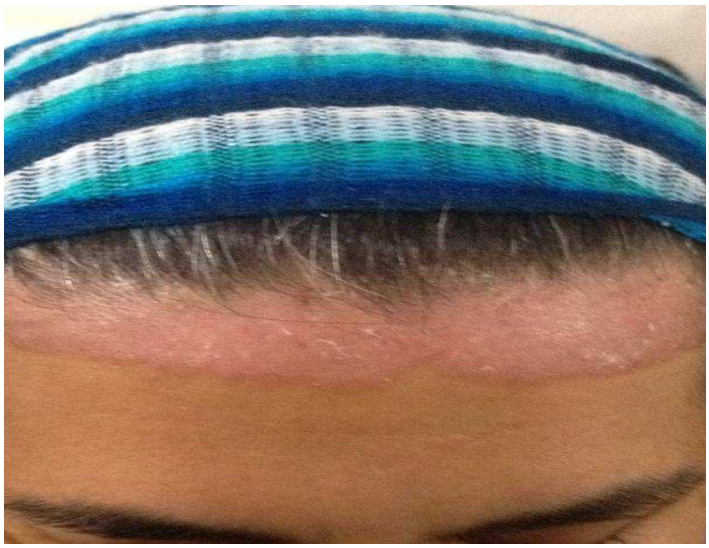

Fig 6: A severe inflammatory picture of the frontal region towards hair insertion is observed, the presence of scabs, scales, and dandruff are evident.

Fig 7: At 24 hours of treatment a considerable decrease in inflammation is observed, the absence of scabs, dandruff, and the presence of tissue regeneration and clear areas can be appreciated.

RESULTS

Case 1- by using the image j program, the affected area under study was 1529856 pixels. At 24 hours of treatment the measurement of clear areas free of erythema, flaking and hyperkeratosis were 422673 and 325365 respectively. The region of the ear evaluated without treatment was 2187243 pixels of the area studied. At 24 hours of treatment, the clear areas were 196,752, 145296, and 107,055 respectively.

Case 2- The measurement of the affected area of the frontal region adjacent to the insertion of untreated hair was 80046. At 24 hours of treatment, the presence of clear areas free of erythema and inflammation was from 18828 and 23588.

Percentage ratio for both cases

Case 1 showed a 48.89% reduction in the affected area after 24 hours of treatment. Case 2 showed a 52.98% reduction at 24 hours of treatment.

DISCUSSION.

Although it has been mentioned that in stages of chronicity skin conditions that are characterized by erythema, flakes, lichenification, and skin thickening. The best response of the tissue is to the presentation in creams, pastes or ointments (Larrondo et al1997), it was observed in this case study that the positive tissue response to the use of salicylic acid in shampoo presentation was rapid and with an improvement of 50% to 48 hours of treatment. This type of pathologies has been associated with the invasion of lipophilic yeasts in the stratum corneo through enzymatic secretion triggering a subsequent inflammatory reaction (Bilgili et al 2013). This study has demonstrated the keratolytic and anti-inflammatory action of salicylic acid. This component appears to have a transient action preventing the formation of sebum on the scalp. Associations with anti-fungal have also been reported (Gupta 2004).

ETHICAL ASPECTS

All photographic shots were consensual by the patients. The full-face shots were discarded to respect their identity, thus complying with Helsinki's standards for human studies.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest between them or with any institution.

CONCLUSIONS.

The keratolytic and anti-inflammatory action of salicylic acid was evident in this case study. However, more studies are

recommended by increasing the number of patients and longer treatment time.

BIBLIOGRAPHY.

1- Cuella L, Sehtman A, Donatti L, Allenato M (2008), Salicylic acid, act terap dermatol, 31: 108.
2- Clark C (2007), scalp problems in the pharmacy, The pharmaceutical journal, vol 278, pp 431-434.
3- Draelos ZD (2005), An evaluation of topical salicylic acid and 1% hydrocortisone in the maintenance of scalp pruritus; j cosmet dermatol, 4(3): 193-7.
4- Larrondo J, Larrondo M, Rubén J, Larrondo L, Aymée R and Hernandez L (1977), dermatological form for the family doctor, Cuban reva med gen integr, vol 13, n 5.
5- Bilgili ME, Yildiz H, Sarici G (2013), the prevalence of skin diseases in a dermatology outpatient clinic in Turkey, 7, 108-112.
6- Gupta AK (2004), seborrheic dermatitis, JEADU, 18: 13-26.