

ALHYDRAN

medical after care
for the skin



SCIENTIFICALLY PROVEN

Treatment for the disrupted skin barrier
To help against itching, redness and scars

- Optimal hydration of the epidermis
- Promotes skin barrier restoration

UPDATE 2022 / 2023

ALHYDRAN

medical after care
for the skin

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ABOUT ALHYDRAN

What is ALHYDRAN?

ALHYDRAN is a medical cream specially developed for:

- After care of the skin immediately after wound closure
- Treatment for disrupted skin barrier

The indications below are examples of serious disruption of the skin barrier, as a result of which the skin will lose too much moisture, the skin dries out, complaints will occur (the skin irritates, itches, is red, etc). This vulnerable skin must be assisted in order to function and heal.

ALHYDRAN provides results

ALHYDRAN cream ensures optimal hydration of the epidermis (by means of a unique combination of hydration and occlusion), and promotes healing of the skin barrier¹.

This brochure sets out the indications for treatment with ALHYDRAN, how the cream works and its results. The effectiveness of ALHYDRAN has been proven scientifically.^{1,20} As a result of this, the product has been widely used by specialists for more than 20 years.^{1-7,9-19}

Example indications



Burn



Scar



Wound edge/Peri wound skin



Radiation after care

ALHYDRAN IS USED BY SPECIALISTS, IN BURN CENTERS AND HOSPITALS WORLDWIDE IN:

- Medical after care
- Scar prevention
- Treatment of vulnerable skin after burns
- Peri wound skin around chronic wounds
- Extreme redness
- Radiotherapy after care
- Other indications

AVAILABLE IN MORE THAN
50
COUNTRIES



"The effectiveness of ALHYDRAN has been scientifically proven.^{1,20} As a result of this, the product has been widely used by specialists for more than 20 years".^{1-7,9-19}

THE SKIN BARRIER

Healthy skin barrier

Regulating hydration is an important tool of the skin in protecting itself against harmful external influences.

The amount of water that leaves the body via the skin is known as *Trans Epidermal Water Loss (TEWL)*.

A healthy skin has a stable level of TEWL with the upper skin layer consisting of approximately 30% water.⁸

This level is necessary for optimal functioning of the skin. (Image 1)

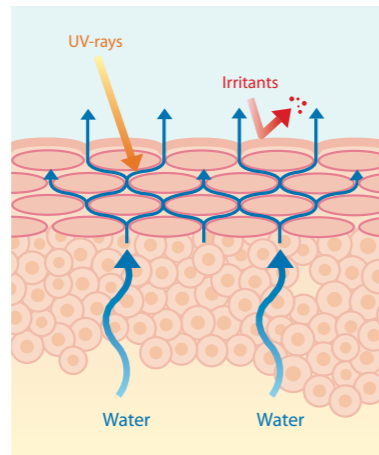


Image 1: Healthy skin barrier. A stable level of TEWL.

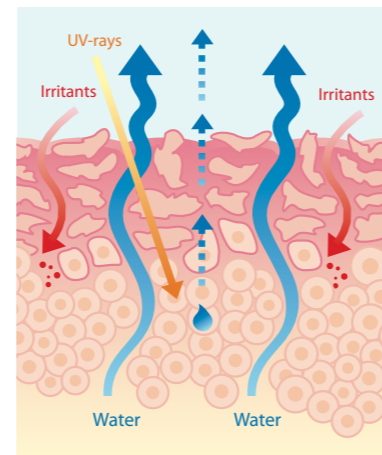


Image 2: Disrupted skin barrier. Increased TEWL.

Disrupted skin barrier

Skin barrier disruption increases TEWL. The body then loses an abnormal high volume of water through the skin.

This will result in a decrease of the normal water percentage in the epidermis, causing the skin barrier to dysfunction. This vulnerable skin is unable to heal and protect itself. (Image 2)

Complaints arise such as severe itching, redness, dry skin etc. This in turn can cause, among other things, unfavorable scar development, trigger eczema and stagnation of wound healing.

This skin needs optimal hydration of the epidermis and restoration of the barrier function to be able to recover.

HOW DOES ALHYDRAN WORK?

Unique combination of ingredients

ALHYDRAN has a unique combination of ingredients, which optimally helps in repairing a disrupted skin barrier. In order to ensure optimal hydration and occlusion ALHYDRAN contains:

1. Humectants

Humectants increase hydration by attracting water from the dermis into the stratum corneum.

2. Occlusive ingredients

Occlusive moisturizing ingredients are oily substances that impair evaporation of skin moisture by forming an epicutaneous greasy film that impedes water loss.

3. Emollients

Emollients (oils and lipids that provide partial hydration and occlusion) help keeping the skin smooth, flexible and lubricated.

The combination of humectants, emollients and occlusive ingredients ensures powerful hydration as well as moisture retention (via occlusion). This results in long-term reinstatement of the moisture balance in the skin. (Chart 1)

Furthermore, ALHYDRAN contains antioxidants which help to protect the skin against free radicals. The unique combination of these features, help the disrupted skin barrier to recover itself.

The risk of scarring is decreased, existing scars and complaints such as itching are relieved, eczema triggers

and peri wound complications are reduced, to promote optimal wound healing.^{1-4, 6, 7, 10-18}

Scientifically proven

For more than 20 years ALHYDRAN has been successfully used by specialists, scientists, dermatologists, hospitals and burn centers worldwide. The benefits of ALHYDRAN are supported by extensive scientific researches and studies:

Scientific researches : pages 14 - 17
Clinical studies : pages 18 - 27
Case studies : pages 30 - 45

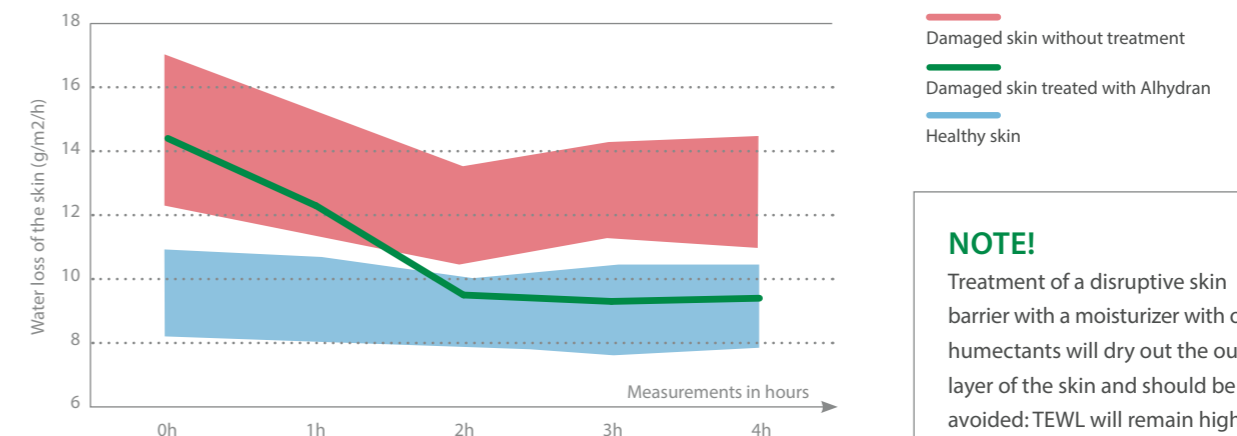


Chart 1: ALHYDRAN restores moisture balance within 2 hours.¹⁰

NOTE!

Treatment of a disruptive skin barrier with a moisturizer with only humectants will dry out the outer layer of the skin and should be avoided: TEWL will remain high which can worsen complaints.¹

IMPORTANT FACTORS IN SKIN BARRIER RECOVERY

Important factors for effective skin barrier recovery are:^{1, 8-9, 19-20}

- Optimum hydration of the epidermis
- Moisture retention
- UV protection*

ALHYDRAN has a proven track record: the unique mix of ingredients ensures both effective hydration and moisture retention (via occlusion).

The cream accordingly helps to restore hydration to the level required for normal functioning.^{1-3, 10, 18, 20} As a result, the skin does not dry out and can recover normally.

* The unique effects of Alhydran are also available with high-level sun protection. See page 10. 'ALHYDRAN with high-level sun protection'.

WHEN CAN YOU USE ALHYDRAN



Burn



Non-matured scar



Very dry skin / Peri wound skin



Radiation after care



Skin transplant



Actinic keratosis



Laser therapy



Atopic eczema

Indications

ALHYDRAN is used in all cases of disruption of the skin barrier, but always after wound closure.

THE BENEFITS OF ALHYDRAN FOR YOUR PATIENT

- Rapidly reduces itching^{6, 11, 15, 17}
- Reduces dry and red skin^{6, 11-12, 17}
- Less pain^{12, 13, 16}
- Reduces stretched / contracted skin complaints^{6, 11-12}
- Prevents scars¹⁶
- Fades and reduces existing scars¹³
- Softens the skin^{6, 11-14}
- Increases skin elasticity^{6, 11-14}
- Decreases skin irritation^{11, 14}

ALHYDRAN has proven its worth in cases of:

- ✓ Burns
- ✓ Scar treatment (new & existing)
- ✓ Reddened and (extremely) dry, painful skin
- ✓ Extremely itchy skin
- ✓ Wound edges and peri wound skin
- ✓ After care
 - Dermatological treatment
 - Surgical interventions
 - Actinic keratosis
- ✓ Chronic skin disorders
- ✓ Radio therapy
- ✓ Cosmetic intervention (such as laser therapy)

These effects have been extensively documented and scientifically substantiated. For further information in this regard: see pages 12-46 'ALHYDRAN References'.

Scars and burn wounds

Scars and burns disrupt the function of the skin barrier and lead to excessive water loss (TEWL), causing scar tissue to grow in an uncontrolled manner. (Image 3)

ALHYDRAN provides immediate hydration and moisture retention, which helps to restore the skin barrier to prevent scarring and reducing complaints. (Image 4)

Apply ALHYDRAN for:

- Restoring skin elasticity^{6, 11-14, 17}
- Reducing painful tightness^{6, 13}
- Reducing itching and redness^{6, 11-17}

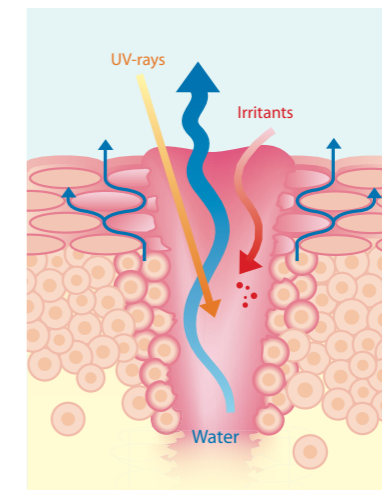


Image 3: Increased TEWL

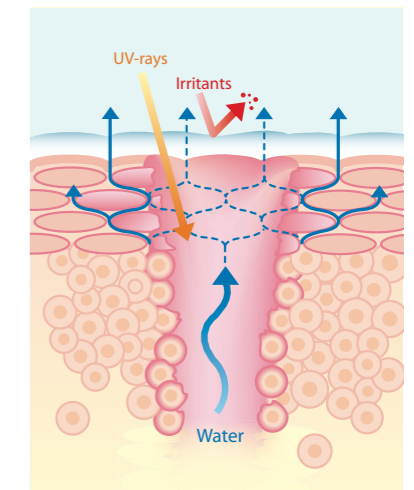


Image 4: TEWL normalised after treatment with ALHYDRAN*

Extremely dry and red skin

A disrupted skin barrier fails to provide a protective function. The excessive volume of water leaving the body through the epidermis reduces proper functioning of the skin. Causes of extremely dry and red skin include erosive skin conditions, chronic skin diseases, and radio and lasertherapy. (Image 5)

ALHYDRAN provides immediate hydration and moisture retention. (Image 6)

Apply ALHYDRAN for:

- Rapid healing⁴
- Calming irritated skin⁴
- Reducing redness and itching⁴

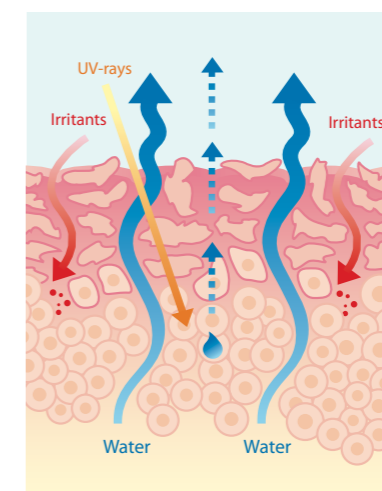


Image 5: Increased TEWL

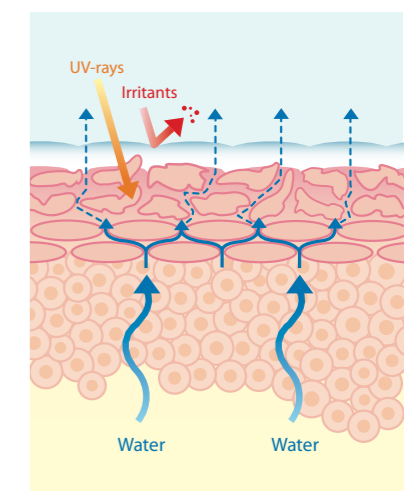


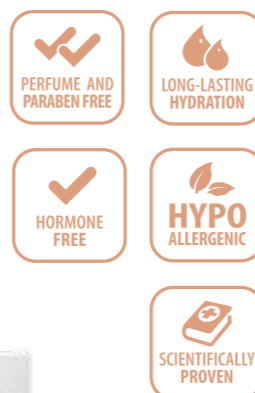
Image 6: TEWL normalised after treatment with ALHYDRAN*

*Alhydran is also available in a variant that actively protects vulnerable skin against damaging UV rays: see page 10; 'ALHYDRAN with high-level sun protection'.

FACTS ABOUT ALHYDRAN

Most important characteristics

- ✓ First proven medical cream for treatment of the disrupted skin barrier immediately after wound closure
- ✓ ALHYDRAN's effects have been proven in scientific¹⁻³ and clinical studies^{5-7,9-18} and are supported by many case studies⁴
- ✓ Complies with the *International Scar Management guidelines*^{8,19} (prevention and treatment)
- ✓ The standard product in after care medical protocols⁵⁻⁷
- ✓ Registered as a Medical Device
- ✓ Hypoallergenic and free of parabens and perfumes
- ✓ Contains antioxidants; vitamins E and C



How to use ALHYDRAN

- Only to apply after wound closure
- Can be used in combination with silicone therapy and under wound dressings, support stockings and pressure garments^{6,12}
- A small amount per application is enough to moisturize the skin

- ALHYDRAN is:
- ✓ Concentrated¹
 - ✓ Long lasting^{1,10}
 - ✓ Cost effective



ALHYDRAN MEDICAL CREAM RANGE

ALHYDRAN

- 30 ml (1 fl. oz.)
- 100 ml (3.4 fl. oz.)
- 250 ml (8.5 fl. oz.)

ALHYDRAN with SPF 30

- 59 ml (2 fl.oz.)

ALHYDRAN with high-level sun protection

The unique effects of ALHYDRAN are available in a variant with high-level sun protection. The International Guideline recommends using a high sun protection cream as a routine component of postoperative wound care.^{8,19}

The disrupted skin barrier must be protected - also against damaging UV rays. On a completely cloudy day 40% of available, damaging UV radiation still reaches the earth.

The International Guideline recommends avoiding exposure to the sun and

applying a high sun protection factor of 30 (SPF 30).⁸

ALHYDRAN with high level UV protection provides broad spectrum UVA and UVB protection. The unique mix of ingredients ensures optimal treatment and protection of the disrupted skin barrier.

SCARS
ECZEMA
ITCHING
SENSITIVE SKIN
BURNS
RADIOTHERAPY
ECZEMA
SENSITIVE SKIN
SCARS
ITCHING
WOUNDS
RADIOTHERAPY
ECZEMA
BURN SCARS
WOUNDS

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HSOA Journal of Gerontology and Geriatric Medicine

Research Article

MMRC (Alhydran®), an Interesting Treatment Option for a Disrupted Skin Barrier

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Abstract

Skin aging, scar formation and some types of eczema are associated with dysregulation of the intracellular water content of the epidermis. One of the main reasons for this is a disruption of the skin barrier function which subsequently leads to an increased Trans Epidermal Water Loss (TEWL). This often results in a dry, fragile, and itchy skin, requiring rehydration and restoration of the barrier function. Based on the currently available literature, there is no clear evidence about the most optimal treatment to achieve these goals and a myriad of indifferent creams are advised in (inter) national guidelines. Since 2005 a Medical Moisture Retention Cream (MMRC) Alhydran® is used in many health care settings worldwide for patients with various pathologies associated with an impaired barrier function of the skin. This article reports specifically about the available literature on MMRC and explains how its use may result in less itching and a better hydration status of the skin.

Keywords: Disrupted skin barrier; Dry skin; Indifferent cream; Itching; Loss; Natural moisturizing factor

Conclusion

An impaired barrier function of the skin occurs in different pathologies. ALHYDRAN is a moisturizer which increases skin hydration and reduces abundant TEWL. This may contribute to:

- ✓ Preservation of an adequate skin barrier function
- ✓ Improvement of Quality of Life (in patients with a disturbed skin barrier function in different pathologies).



BURNS 39 (2013) 1437–1448



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journal homepage: www.elsevier.com/locate/burns



Scar management by means of occlusion and hydration: A comparative study of silicones versus a hydrating gel-cream

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Silicone gel
Fluid silicone gel
Silicone gel sheets
Hydrating gel-cream
Moisturizers
Hydration
Occlusion
Trans epidermal water loss

ABSTRACT

Despite the worldwide use of silicones in scar management, its exact working mechanism based on a balanced occlusion and hydration, is still not completely elucidated. Moreover, it seems peculiar that silicones with completely different occlusive and hydrating properties still could provide a similar therapeutic effect.

The objective of the first part of this study was to compare the occlusive and hydrating properties of three fluid silicone gels and a hydrating gel-cream. In a second part of the study these results were compared with those of silicone gel sheets.

Tape stripped skin was used as a standardized scar like model on both forearms of 40 healthy volunteers. At specific times, trans epidermal water loss (TEWL) and the hydration state of the stratum corneum were measured and compared with intact skin and a scar-like control over a 3–4 h period.

Our study clearly demonstrated that fluid silicone gels and a hydrating gel-cream have comparable occlusive and hydrating properties while silicone gel sheets are much more occlusive, reducing TEWL values far below those of normal skin.

A well-balanced, hydrating gel-cream can provide the same occlusive and hydrating properties as fluid silicone gels, suggesting that it could eventually replace silicones in scar treatment.

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ELSEVIER



Conclusion

ALHYDRAN: A well-balanced, hydrating cream with occlusive and hydrating properties for treatment of disrupted skin barrier (e.g. scars).

- ✓ Significantly reduced TEWL
- ✓ Increased stratum corneum water content
- ✓ Long-lasting effect



Burns 2013: test areas

BURNS 43 (2017) 965-972



Available online at www.sciencedirect.com

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journal homepage: www.elsevier.com/locate/burns



Moisturisers in scar management following burn: A survey report

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Transepidermal water loss

ABSTRACT

Scar management is a recognised key component of rehabilitation following burn. Moisturising often combined with massage is commenced once healing tissue has gained sufficient strength to tolerate surface friction, with the aim being to hydrate the dry scar. The studies on various moisturisers and creams provide some guidance on moisturiser selection, but many are inconclusive.

Objective: This survey aimed to determine the current expert opinion regarding moisturiser recommendations, including the basis for these recommendations, across the burns community.

Methods: A brief web-based survey was distributed to burn therapists via mailing lists of the Australian and New Zealand Burn Association (ANZBA), and American Burn Association (ABA) 'Occupational and Physical Therapist Burn Special Interest Group'.

Results: The fifty three respondents indicated that there were 29 different moisturisers commonly recommended in practice. Three main themes were indicated as influencing recommendations for moisturiser: the perceived effects on the scar/skin (48%); the general properties of the moisturiser (38%); the ingredients (14%). Therapists reported that the principle stimuli determining their recommendations were patient feedback and the choice of the previous burn therapist in their service. Many were also guided by medical staff, pharmacists and sales representatives. Only three respondents were able to provide citations for published evidence supporting their recommendations.

Conclusions: There is a paucity of evidence currently to support optimal moisturiser choice. This survey demonstrates that conflicting opinions are held on the ideal moisturiser brand, properties and ingredients. The recommendations made are based on low level evidence. Further research is required to inform clinicians which moisturiser to recommend to their clients. An ideal moisturiser should be one that is conducive to scar maturation, non- or minimally irritant, prevent skin drying, minimise transepidermal water loss and have no negative effect on barrier function.

Conclusion

- ✓ TEWL appears to be one of the most important considerations regarding future research in the area of moisturisers effect on scars
- ✓ The ideal moisturizer should be conducive to scar maturation, be low irritant, prevent skin drying and negative effects to barrier function, and minimize TEWL
- ✓ Avoid watery creams. Aqueous creams increases TEWL
- ✓ ALHYDRAN has demonstrated to have effect on TEWL and potentially the scar outcome
- ✓ More studies of similar quality and content such as that assessing ALHYDRAN are required



Journal of Gerontology & Geriatric Research

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Research Article

OMICS International

Application of Medical Moisture Retention Cream (ALHYDRAN®), A New Option in the Treatment of Venous Eczema

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Abstract

Aim: Patients with venous eczema may suffer considerably from redness, crusts, pain, flaking and itching. In general, as treatment, compression therapy and indifferent ointments/creams are used, often together with topical steroids, though the latter may exhibit considerable side effects. This study aims to explore the effect of Medical Moisture Retention Cream (MMRC = ALHYDRAN®) on the symptoms and complaints of patients suffering a venous eczema, often next to an existing VLU. The working mechanism of MMRC involves a combination of the moisturizing effect of Aloe Vera gel and the moderate occlusion effect of added fatty acids.

Method: In an open case series, 18 patients attending an outpatient wound clinic with moderate venous eczema (maximum TIS score<3) participated. MMRC was applied twice a day and its use was clinically assessed for 4 consecutive weeks. Next to the registration of patient characteristics and capturing the clinical details of the skin lesions in weekly pictures, a VAS scale to assess the patients' and caregivers' experience with the treatment was used.

Results: During the application of MMRC, the signs and symptoms of a dry, itchy, scaly, crusty and erythematous skin, faded in all patients. The skin condition of most participating patients improved and there was also a visibly better skin hydration status in all patients. Relevant aspects such as 'night rest', 'mood' and 'social participation' improved, except for 2 patients. The clinical skin condition of one of these deteriorated in a week, which was not related to the use of MMRC. No side effects to the use of MMRC were observed. The wound care experienced nurses assessed MMRC as effective and feasible.

Conclusion: This study shows that MMRC is effective, safe, and feasible in the treatment of venous eczema. Future Randomized Controlled Trials are necessary to compare the efficacy and feasibility of MMRC with the application of other hydrating creams/ointments and topical steroids.

Conclusion

- ✓ This study shows that ALHYDRAN is effective, save and feasible in the treatment of venous eczema
- ✓ During the application of ALHYDRAN, the signs and symptoms of a dry, itchy, scaly, crusty and erythematous skin, diminished in all patients
- ✓ Visibly improved skin hydration status in all patients
- ✓ The skin condition of most participating patients improved
- ✓ Relevant aspects such as 'night rest, mood and social participation' improved in most participants

CLINICAL STUDY

Presented at the European Burn Association (EBA), Budapest, Hungary, 2007
Burn Centre, University Hospital Ghent, Belgium

TWO YEARS OF EXPERIENCE WITH A NEW PRODUCT BASED ON ALOE VERA FOR HYDRATION OF BURN SCARS

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Introduction: In humans deep dermal burns unfortunately do not heal by regeneration of the damaged skin but by the formation of scar tissue (Fig.1). While the prevention of hypertrophic scars (Fig. 2) with pressure garments and silicone inlays has been widely studied, very little evidence has been published on the optimal skin care after burns. The different structure of scar tissue with the absence of sweat and sebaceous glands results in drier, less elastic and itchy skin. Treatment of these annoying skin problems is of utmost importance for the burn patient. An inquiry in the major European burn centres revealed a plethora of creams and ointments that are used for scar treatment after burns but without any standard therapy. Aruba Aloe Balm (Formula F-BC-096) containing 45% of pure, freshly processed Aruba Aloe Vera gel (Fig. 4) obtained directly from the plant (Fig. 3) was used during the last two years for about 50% of our burn patients. We evaluated the presence of residual defects, elasticity of the skin, subjective feeling of the patient especially itching and ease of use, and the final aesthetic outcome.

Methods: All treated patients children and adults had skin grafts or burns with a conservative healing time of > 18 days. Patients underwent a treatment regimen with pressure and silicone garments. Patients were asked to moisten the scars with a thin layer of the product 3 times a day. In order to avoid biased results the Balm (Formula F-BC-096) was delivered in blanc white tubes (Fig. 8) and patients were not aware of the composition of the product. Follow up visits including clinical assessment and digital photography of the scar were done on a regular basis for at least one year as usual in our centre. For some patients in which a control product for comparison was used measurements for skin elasticity (Dermalab) (Fig. 6) and colour (Dermaspectrometer) (Fig. 5) were performed.

Case 1 : Scar formation after surgery

Start with Alhydran® 3 months with Alhydran® 5 months with Alhydran®

Case 2 : Scald

1 day post burn Start with Alhydran® 1 year with Alhydran®

Results: No allergic reactions related to the product were noticed. In general the aesthetic outcome of patients treated with the Balm (Formula F-BC-096) was better than in patients treated with other moisturizers as scored in the Vancouver Scar Scale. However these are subjective findings, they were confirmed by objective measurements of the Dermalab and Dermaspectrometer in patients where additionally a control product was used. All patients preferred the test product above other products we always used before in our centre. In more than 90% of the patients itching was reduced as they needed less medication and were more comfortable during the day and especially children had a more quiet sleep. Combination possibilities with pressure garments and silicone sheets are outstanding.

Conclusion: After a survey throughout the burn centres of Europe we noticed that there is definitely no standard for hydration of scars and the use of these moisturizers. After two years of excellent results using this new product we think now there is the possibility to set this standard. Till 2007 this product was not distributed outside the Caribbean. In an attempt to make this product available for all patients in Europe a new brand name Alhydran® (Fig.7) was chosen for distribution. A prospective, randomized, double blinded, controlled clinical trial of the Aruba Aloe Balm (Formula F-BC-096) in the treatment of split thickness donor sites after wound closure is already registered at www.ClinicalTrials.gov and is recruiting patients.










CLINICAL STUDY

Presented at the European Burn Association (EBA), Budapest, Hungary, 2007
and the International Society for Burn Injuries (ISBI), Montreal, Canada, 2008
Burn Centre Rotterdam, the Netherlands

ALHYDRAN

"Itching, is there a remedy ?" a pilotstudy with a rehydration gel-creme in burnpatients

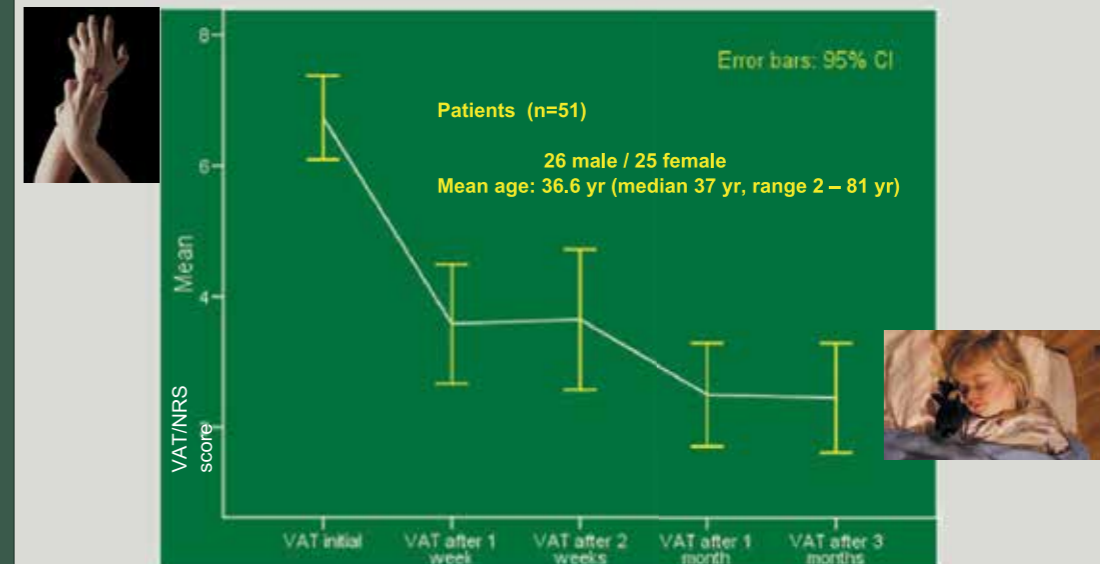
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Introduction

Itching after burns is a matter of body and mind, but little is known regarding its exact mechanism. Results of studies show a gradual decrease in itch intensity in time, but still moderate to serious itch several years after burns (van Loey e.a.). In 2006 a gel-creme that supposed to decrease itch was introduced in our Burn Centre. The main ingredients of Alhydran® are Aloë Vera (Aruba Aloe Barbadenis), vitamins C and E and Jojoba oil. To determine its efficacy we performed a pilotstudy.

Methods

Since November 2006 in the outpatient clinic of the Burn Centre Medical Centre Rijnmond-Zuid itching is scored in patients using the Visual Analogue Thermometer (VAT) or the Numeric Rating Scale (NRS 0-10). Measurements were done before application of Alhydran® and after 1 week, 2 weeks, 1 month and 3 months after the start of treatment. Follow up data were collected on outpatient visit or by phone.



Results

Data analyses with ANOVA and T-test show before starting Alhydran® that the mean VAT/NRS for itch intensity is 6.7(see graphic). There is a decrease in time: the mean score after one week is 3.5, after two weeks 3.6, after one month 2.5 and after three months 2.4. There is no relation between VAT/NRS and gender, age, TBSA%, location, cause of burn or combination therapy with other scar treatment. Besides a decreased VAT score parents of young children mentioned their child was more at ease and had a better night's rest. One patient had discontinued Alhydran® because there was no itch anymore after 1 week and 1 patient reduced antihistaminic medication. Two patients said they stopped the creme because of irritation of the skin.

Conclusions

"Itching can make you crazy". Our first experience indicates that this gel-creme could decrease itch intensity after burns, which contributes to improvement of quality of life. Ongoing research will include additional assessment by a Burns Itch Questionnaire, scar evaluation like the Vancouver Scar Scale, Patients and Observer Scar Assessment Scale, cuto – and dermaspectrometry and a Quality of Life questionnaire.

Reference (1) NEE van Loey, e.a. Itching following burns; epidemiology and predictors; accepted in Burns 2007.

CLINICAL STUDY

Presented at the German-speaking Working Group for Burn Treatment (DAV), Styria, Austria, 2010
Burn Rehabilitation Centre, Bad Klosterlausnitz, Germany



28th Annual Conference
of the German-speaking Working Group
for Burn Treatment

dav2010

13–16 January 2010
Schladming – Rohrmoos (Styria – Austria)

ABSTRACT BOOK

p47

Effect of scar treatment products on unpleasant physical manifestations in patients suffering from extensive burn scarring

Lead author: Dr. med. Hans Ziegenthaler
Moritz Clinic, Burns Rehabilitation centre, Hermann-Sachse-Str. 46, 07639 Bad Klosterlausnitz

Purpose:

Scars lack endogenous sebaceous glands, which means that they do not have a physiological fatty coating to protect the tissue against acid. Consequently, the scarring process is accompanied by unpleasant physical manifestations such as itching, tightness, dryness and flaking, the subjective perception of which varies from one individual to another. The aim of our investigation is to ascertain how far the effect of scar treatment products in the early stages of scar formation during rehabilitation can be measured.

Patients and methods:

15 patients with burn injuries taking part in an in-patient rehabilitation programme (five to eight weeks after their accident) were observed as part of a clinical treatment observation study. The patients all had healed scar tissue patches on the trunk and limbs which flaked quite severely, felt tight and/or itched both at rest and while the patient was moving. Wound care was generally given every day, in some cases more than once a day, using the proven product SR Unguentum cordes. After inflammatory factors had been ruled out, those patients who were continuing to experience itching and a sensation of tightness exceeding 50% on an intensity scale were switched to ALHYDRAN® cream. The state of the scars was assessed using the Vancouver Scar Scale at point T0, T1 (14 days later) and T2 (a further 14 days later). At these points photographs were taken, medication requirements (analgesics, neuroleptics, antihistamines) were noted, patients' pain perception according to the VAS scale was recorded and their health-related quality of life (SF 36) was ascertained. The Pationnaire® questionnaire, which had never previously been used with burns patients, was also employed (this questionnaire investigates various everyday and injury-specific items). The trial group was too small for statistical assessment, so the findings were assessed by means of descriptions and photographs.

Findings:

A marked improvement compared to the baseline was observed in the subjective categories assessed, particularly itching and a sensation of tightness. However, the treatment group, the period investigated and the absence of randomisation make it impossible to reach any more far-reaching conclusions than an observation of change. No adverse effects were reported. On the other hand, convincing application properties in the burns patient group were indicated by the Pationnaire® questionnaire, which had previously been used only in the context of injuries to the supporting and locomotor systems but which now has a skin module.

Conclusions:

ALHYDRAN® appears to be able to minimise manifestations such as itching and a sensation of tightness, which patients find very distressing, in the early stages of scar formation. This form of scar treatment is well tolerated and can easily be combined with the administration of textile-based compression therapy. We intend to conduct a clinical study with a larger randomised group and a follow-up after three months in order to obtain findings suitable for statistical analysis.

CLINICAL STUDY

Presented at the European Burn Association (EBA), The Hague, the Netherlands, 2011
Burn Rehabilitation Centre, Bad Klosterlausnitz, Germany

ALHYDRAN

Moritz Klinik Bad Klosterlausnitz
Orthopädisch-traumatologische Abteilung
Reha-Zentrum für Brandverletzte

Scars after large surface thermal burns – Registration of Quality of Life and therapeutic influence of Alhydran®

Hans Ziegenthaler

Question:
Scars, as a result of large surface thermal burns, show in comparison with normal and sound skin, serious functional deficits. These deficits can be described by means of objective, biomechanical and physiological characteristics and by the subjective observation of itching, skin tension, dryness and redness of the skin. The main goal of the study was to investigate the influence of the scarring on the Quality of Life related to the patients' circumstances, and to measure this as well as the influence of skin care products in the early stage of scar maturation during the rehabilitation of the patients.

Material and Method

Material:	Patient population
number (n)	75
men / woman	54 / 21
average age (years)	51,3 ± 14,6
BMI (kg/m ²)	23,9 ± 5,7
average total burn surface area (%)	23,0 ± 15,0
range accident to start inpatient rehabilitation (days)	55,1 ± 30,2
duration of treatment (days)	34,9 ± 16,1

Negative Bodyexperiences related to the burn injuries were noted in the beginning of the test in the following percentages of all patients (%)

The Pationnaire®-questionnaire is a best-suited patient questionnaire for the interactive anamnesis and allows the objective measurement of symptoms, disabilities and well-being. The patient completes the Pationnaire questionnaire himself. It is then discussed with the physician, therapist, study attendant, supplemented and, if necessary, corrected accordingly. The Construct Validity revealed a very high agreement between the answers to the questionnaire and the personal interviews (94% of the specimen). There was also a partial conformity (6% of the specimen) by older patients with cognitive problems. The reliability by repeated completion of the questionnaire (Test-Retest) produced good values. The Intraclass Correlation Coefficients (ICC) were over 0.7 (good) by 22 of the 33 questions. The Pationnaire measures more complaints (up to 10 symptoms) than other questionnaires (e.g. SF 36), also specific items of burn victims with a specific module. He is not only of simple design, but also clearly defined and patient-friendly.
www.pationnaire.ch

The SF-36v2® Health Survey asks 36 questions to measure functional health and well-being from the patient's point of view. It is a practical, reliable, and valid measure of physical and mental health that can be completed in five to ten minutes. It's called a generic health survey because it can be used across age (18 and older), disease, and treatment group, as opposed to a disease-specific health survey which focuses on a particular condition or disease. The survey is meaningful to patients, clinicians, researchers, and administrators across the health care spectrum, and has various applications. The SF-36 provides scores for each of the eight health domains [Physical Functioning (PF), Role -Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role-Emotional (RE), Mental Health (MH)] and psychometrically-based physical component summary (PCS) and mental component summary (MCS) scores. www.qualitymetric.com

Data evaluation: The specifications have been analyzed by the program for statistical evaluation WINDOWS SPSS 13.0.

Results

The Pationnaire® showed, especially in the fields of redness (20,4%) and skin tension (16,9%) a substantial improvement compared to the initial values. Also the reduction of itching (13,5%) and dryness of the skin (13,8%), were clearly noted in the scoring of the patients. The general score on the experienced impediments of the burn scars was reduced in 2/3 of the patients, and the general quality of life experience was increased with 12,6%. The use of anti-histamines in the study group of patients was reduced during the total treatment period by 1/2. Side effects of the treatment with Alhydran® were not at all experienced. (left)

As could be expected, the SF-36 short-form health survey, showed for all patients and all items and in all subscales, an underscoring of the average Norm value of 50 of the standard population. The biggest underscoring in combination to this standard normation value of 50 of the SF-36 Physical Component Summary and Mental Component Summary, were found in the scales of Physical Functioning, Role-Physical and General Health. This could be expected because of the high physical functional deficits of the patients. The physical component summary (PCS) had originally an average of 29,7 ± 6,3 which increased after 4 weeks to 21,9 ± 5,9. In the mental component summary (MCS) the starting value was 49,3 ± 7,9 and this increased to 51,7 ± 8,0. The Physical Functioning (PF) had in the beginning a value of 21,7 ± 9,5 and this improved to 21,9 ± 7,4. The biggest improvement in the patient situation was obtained with the Role-Emotional scoring (RE), where the value increased from 18,1 ± 5,9 towards 33,8 ± 7,9. The values for burns patients however still remain below the values for healthy comparative groups.(right)

Conclusions:

1. This first use of the Pationnaire® questionnaire with a new skin module for the follow-up of burns, showed in practice stable and reliable characteristics of use in the monitoring of burn patients.
2. Alhydran® was successfully used during the early maturation of the scars, to reduce the subjective and unpleasant side effects of burn scars such as redness and skin tension, without noticeable side effects.
3. Alhydran® could trouble free be combined with (textile garments) pressure therapy. Inhomogeneous treatment groups and the missing randomization in this study, do not allow to draw conclusions beyond the observations of this study about a trend in treatment effects.
4. Further clinical, probably multi-centre studies with a larger randomized group of patients, as well as a post-study check, are needed to be able to draw statistically relevant conclusions.

Die Untersuchung fand mit freundlicher Unterstützung der Fa. BAP Medical BV statt.
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CLINICAL STUDY

Presented at the European Burn Association (EBA), The Hague, the Netherlands, 2011
 Dep. of Plastic Aesthetic and Reconstructive Surgery, Metz, France

Application of Alhydran in the treatment of pathologic scars after cryoshape therapy

Personal experience



Cryogen.



ALHYDRAN



How cryoshape acts on scars.

Care of the scar at -136 °C (+328.8°F) no solution of continuity of the skin.



Clinical case: Hypertrophic scarring after bilateral reduction mammoplasty.



Close up of the scars to be treated (right breast).



Close up of the scars to be treated (left breast).

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Introduction
 Aloe Vera has been used as a popular herbal medicine since ancient times for many conditions. In 1851 T and H Smith of Edinburgh discovered the active principle of the plant. Aloe Vera contains 75 active constituents: vitamins, enzymes, minerals, monoacids, and acid salicyliques. After a bibliographic research on EBSCO, Medline and Google with the key words: aloe Vera, topic, surgery and wound healing, we decided to introduce the topical utilization of Aloe Vera in the treatment of scar tissue.
 We decided to use Alhydran cream because of the characteristics of the pure and high concentration of the Aloe Vera, associated with high quality oils, Vitamins E and C. The cryoshape is a new technique for treating keloids and hypertrophic scars developed by Dr. Yaron Har-Shai. We present our experience with these new devices.

Materials and Methods

Technics
 A specially designed cryo-needle was inserted into the long axis of the hypertrophic scars and keloids so as to maximize the volume of the hypertrophic scars and keloids to be frozen. After the hypertrophic scars and keloids were completely frozen, the cryoprobe defrosted and was withdrawn. After the treatment a dressing with Vaseline gauze was applied. The dressing was replaced after 48 hours by hydrocolloid. We started the application of Alhydran two weeks after these scars had been treated with cryoshape. The topical application was done twice a day for roughly four to six weeks.

Patients
 From January 08 till July 09 we have treated 13 patients for a total of 21 scars. The age of the patients were between 17 and 62 years old
 5 patients presented pathological scars after breast surgery, 2 patients after abdominal surgery, 2 patients after ear surgery, 1 patient after cleft lip surgery, 1 patient after sternotomy and one patient after burn injury.

Results
 None of the patients experienced an intolerance or allergy to the Alhydran. All patients experienced improvement in the scars aspect and pain and itching presented before treatment had disappeared. No adverse events were reported by any of the patients.

Conclusion
 Cryoshape and Alhydran showed a good synergy in the management of pathologic scars. Further, well-designed trials should be carried out to determine the effectiveness of Alhydran in improving scars outcome



Introducing the cryoshape through the scar



Intraoperative view: you can note the freezing of the scar



Scar completely frozen.



Immediate post operative



Pathologic scars of mediastinum sequel of cardiac surgery: pre operative view before cryosurgery



Alhydran



Aloe vera: a systematic review of its clinical effectiveness




Overview


CLINICAL STUDY

Presented at the European Burn Association (EBA), Vienna, Austria, 2013
 Burn Centre, University Hospital Ghent, Belgium





kritieke diensten
 Universitair Ziekenhuis Gent



UNIVERSITEIT GENT

Development of a new brochure making aftercare of burns more understandable for patients

Henk Hoeksema, Katrien Van Gastel, Veerle Van Geertruy, Pieter Lafaire, Jozef Verbelen, Stan Monstrey
 Burn Centre, Ghent University Hospital, Belgium

Introduction:
 One of the first questions of burn victims and relatives is whether they will end up with visible scars. Scars are an unavoidable consequence of dermal burns, but the outcome depends largely on the method of scar treatment. This very long and tedious process can only lead to a good result by optimal professional skills and compliance of the patient. We noticed the growing need for a patient brochure concerning the aftercare of burns because an optimal outcome can only be achieved if the patient and family completely understands the reasons behind the treatment.

Methods:

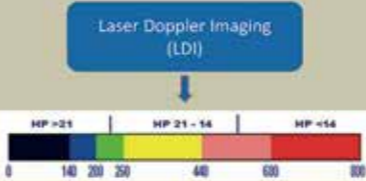


Fig 1: healing time or healing potential

	hydration	UV-protection	Pressure garments	silicones
A. HP <14 days	yes	yes	no	no
B. HP 14-21 days	yes	yes	no	no
C. HP 17-21 days	Yes	Yes	Yes	yes
D. HP >21 days	Yes	Yes	Yes	yes

Fig 2: aftercare related to healing time

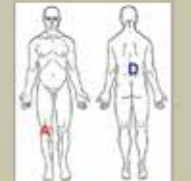



Fig 3: Individual aftercare schedule

Aftercare for: All HP categories


- Hydration by Alhydran*
- UV-protection

Aftercare for: HP 17-21 days & HP >21 days


- Pressure garments
- Hydration by silicones




Application of Alhydran® 3 times per day in a very thin layer.
 *In a recent study, performed in our Burn Center, Alhydran® showed an even better occlusion and hydration of the skin, compared to that of fluid silicone gels.



Scars are very sensitive and need to be protected from UV radiation. The best way to do so is through the regular application of broad spectrum sunscreen with a high protection factor. Protective clothing such as swimwear and t-shirts are also available and effective.



Pressure garments are custom made from high end elastic cotton and are designed to reduce the blood flow in the scars through the application of local pressure (20-24 mmHg). They need to be worn approx. 22h a day. Patients can use the "easy slide" for easier application of the pressure garments.



Silicones are used to improve the hydration of the scars by reducing evaporation through occlusion of the scar. They are often used to increase pressure underneath pressure garments. Silicones come in different forms, such as elastic clothing, sheets, fluid gels and sprays.

Results:
 The creation of a brochure, starting with a short explanation about scar development after burns. A subdivision into three groups based on healing potential by laser Doppler imaging and exact healing time is linked to the appropriate scar treatment. With help of a figure in the brochure, showing the exact healing times for the different burned areas, it is easy for the patient to understand what kind of scar treatment is recommended. Finally answers to the most common questions are provided.

Conclusion:
 This brochure improves burn patients understanding of scar treatment and improves patients compliance to the suggested treatment. As a consequence, functional and aesthetic outcomes are positively influenced.

CLINICAL STUDY

Presented at the European Wound Management Association (EWMA), Madrid, Spain, 2014
Wound professional, United Kingdom

PSYCHOLOGICAL WELLBEING – SCAR

Authors: Stuart Ashman, Sara-Jane Kray, Tyne & Wear, UK

Aim

To review whether psychological wellbeing can be enhanced by improving the appearance of scar tissue, post injury.

Background

Scar management is not routinely administered for trauma wounds that occur during childhood, however, they can have an effect on how an individual perceives themselves and impact on how they dress.

Scars are the result of an injury to both the dermis and epidermis (and/or deeper tissue). Post proliferation the skin attempts to normalise during the final maturation stage of healing.

Normal remodelling of the skin can take up to 12 months, and depending on how the wound was left to heal, e.g left open or closed with sutures, can also impact on the overall outcome. Scars generally improve over time, becoming less red/pink as blood vessels are removed from the area through apoptosis and flatten as the balance between the synthesis and degradation of collagen is completed.

Routine scar management^[1] is primarily based on the use of silicones following wound closure to occlude and hydrate the scar tissue thus reducing the production of excessive collagen^[2].

Methodology

This case study reviewed the use of a silicone gel sheet and hydration gel-cream and how improvements in scar tissue can have a positive impact on a child's psychological wellbeing.

A girl aged 7, sustained a traumatic injury to her right shin, measuring 4x2cm, requiring 6 sutures (2nd August 2013, Photo 1). Following suture removal the wound dehisced and the resulting scar area remained bright red and raised. The scars prominence resulted in the child refusing to wear dresses or shorts throughout the summer.

A dual therapy was initiated (November 2013, Photo 2) comprising a silicone gel sheet* and a hydrating gel-cream*. Tolerance to the silicone was built up to recommended wear times and the hydrating gel-cream was applied in between with an hour between the application of the hydrating gel-cream and the silicone sheet to ensure optimum results.



Photo 1 - Aug 2013



Photo 2 - Nov 2013



Photo 3 - Jan 2014



Photo 4 - Apr 2014

Results

Within 6 weeks there were considerable improvements in the elasticity, smoothness, thickness and scar appearance (Photo 3). After a total of 5 months of dual therapy the scar had significantly decreased in size and the overall appearance of the scar was flatter, paler and acceptable to the child, (Photo 4).

The child applied the products herself, stating "It makes me feel better, it's working. I put it on myself and I try to remember to do it every day. I'm really happy that the scar is fading so that I can wear nice dresses next summer without the ugly scar".

Conclusion

Scar management should be initiated immediately after wound closure and should continue until the scar no longer causes a problem both physically and psychologically. Silicones gel sheets are shown to provide pressure at the site of scarring and may be used with pressure garments. The hydration gel-cream has been shown to provide the same occlusion as silicone gels whilst also providing hydration, and improving the overall appearance of the scar. Could a combined therapy of both a silicone gel sheet and a hydration gel-cream therefore be the future?

References

1. Thomas A. Mustoe, M.D., Rodney D. Cooter, M.D., et al. (2001) International Clinical Recommendations on Scar Management, Plastic and Reconstructive Surgery, Vol 110, No. 2 (560-571)
2. Hoeksema H, et al. (2013) Scar management by means of occlusion and hydration: A comparative study of silicones versus a hydrating gel-cream. Burns. <http://dx.doi.org/10.1016/j.burns.2013.03.025>

Product references: * Bapscarcare ** Alhydran

Supported by an educational grant from H&R Healthcare

CLINICAL STUDY

Presented at the European Burn Association (EBA), Hannover, Germany, 2015
Scar and Burns Aftercare Department, Oosterbeek, the Netherlands

ALHYDRAN

Use of ALHYDRAN cream in the treatment of burn scars following a chemical explosion - a case study

Author: Rina Rijkenberg, Bachelor of Health, Skin Therapist. Skin Therapy Clinic, Scars and Burns Aftercare Department, Oosterbeek, The Netherlands.

Background

A 58 year old male had been injured in a chemical explosion. The explosion caused a fire, resulting in flame burns to the skin on his face and hands. Burns to the face were second degree, with second to third-degree burns on the hands. On admission to hospital, the Burns Centre Maasstad in Rotterdam, treatment of the burns involved the daily use of silver sulfadiazine cream and changing the bandages until the wounds closed.

The Medical Consultant at the Burn Centre recommended continuation of the treatment by a skin therapist specialising in the aftercare of burn injuries.

Complaints

The patient complained of extremely dry and itching skin on the face and hands. His skin felt extremely tight due to the burns and his hands were highly oedematous.

Post-burn skin therapy

Our therapy consisted of twice-weekly, manual lymphatic drainage, bandaging and endermotherapy, followed by the application of silicon sheets (BAPSCARCARE). A hydrating cream (ALHYDRAN) was also applied 4 to 6 times a day as a very thin layer, by the patient himself. (Normal application is 3 times a day.) We also applied this hydrating cream before and after every endermotherapytreatment.

Results

ALHYDRAN made the patient's facial skin more flexible. The patient reported noticing a difference one or two hours after applying the hydrating cream to his face. His skin felt much looser. The following day the skin on his face was more flexible and "felt great!" His face healed completely, and the skin on his hands became more flexible. Application of the hydrating cream enabled the skin to be moved freely, without tearing, during lymphatic drainage and endermotherapy, which also contributed to the healing process. The cream also significantly reduced the itching.

After three months the skin had noticeably improved; it looked healthier and there were fewer squamae. The hydration level of the skin was improved and the patient reported less itching. Treatment was concluded after 18 months.

References

- 1) "Two years experience with a new product for the hydration of Burn Scars". EBA Congress 2007; Monstrey, S., MD, PhD, Burns Centre, Ghent University Hospital, Belgium.
- 2) "Itching, is there a remedy?"; pilot study on rehydrating gel-cream for burn patients. EBA 2007; H.J. van Kempen, RN; Burns Centre, Rijnmond-Zuid, Rotterdam, The Netherlands.
- 3) "Scar management by means of occlusion and hydration: A comparative study of silicones versus hydrating gel-cream". Burns. 2013 Apr 29. pii: S0305-4179(13)00105-8. doi: 10.1016/j.burns.2013.03.025; Hoeksema H, Monstrey S, et al. Department of Plastic and Reconstructive Surgery - Burns Centre, Ghent University Hospital, Belgium.

Conclusions

The burns were successfully treated using a hydrating cream in combination with lymphatic drainage, bandaging and endermotherapy. The cream is pleasant to use and only a thin layer is required.

We recommend ALHYDRAN to all our burn patients, because of the excellent clinical outcomes we have achieved over the past few years with regard to itching^{1,2}, elasticity¹ and redness¹. This is due to the proven hydration³ and occlusion³ properties of this cream.



Picture 1: These pictures were taken the first time we saw the patient



Picture 2: These pictures were taken three months after commencing our treatment



Picture 3: These pictures were taken six months after commencing our treatment

De Huidtherapeuten is a skin and oedema therapy practice. Our therapists are qualified in the treatment of burns and hold the 'Skin Therapy After Burns' diploma from the University of Applied Sciences, Utrecht, which collaborates with several burns centres in the Netherlands and Belgium.*

NETWORK HUIDTHERAPIE De Huidtherapeuten
*NETWERKPARTNER VAN DE BRANDWONDEN STICHTING PRAKTIJK VOOR HUID - EN OEDEEMTHERAPIE

CLINICAL STUDY

Presented at the World Union of Wound Healing Societies (WUWHS), Florence, Italy, 2016
De Zorggroep - Venray, Maastricht University - Health and Primary Care, the Netherlands

ALHYDRAN[®], a new option in the treatment of hypostatic eczema

Authors: Rondas AALM^{1,2}, Vestjens JA¹, Schols JMGA².

¹ De Zorggroep, Kenniscentrum Wondbehandeling, Venray, the Netherlands.

² Maastricht University, CAPHRI, School of Public Health and Primary Care, the Netherlands.



Introduction

Hypostatic eczema is the result of an existing chronic venous insufficiency. Patients may experience redness, crusts, pain, flaking and itching. As treatment, compression therapy and indifferent ointments and crèmes are used, often together with the application of topical corticosteroids.

The aims

In this case series the effect of a strong hydrating cream ALHYDRAN[®] (>45% Aloë Vera gel) was explored. By applying ALHYDRAN[®] it is expected that the patient's skin will become better hydrated and that further water loss is prevented. Subsequently, the topical use of corticosteroids might be less necessary.

Methods

Patients attending an outpatient wound clinic and suffering from moderate hypostatic eczema (maximum Three-Item-Severity (TIS) score <3) were included. They all used compression therapy.

ALHYDRAN[®] was applied at least twice a day and its use was clinically assessed for a maximum of 4 consecutive weeks. Next to the registration of patient characteristics and capturing the clinical details of the skin lesion in weekly pictures, a tool to assess the professionals' experience with the treatment was used.

Results

In total 18 patients, 10 men and 8 females, were included with a mean of 69.8 years. In 17 patients professionals evaluated the overall treatment effect of ALHYDRAN[®] as positive. With regard to their 'night rest', 'social participation' or 'mood', 16 patients had no complaints at the start of the application. During application the night rest and social participation of 2 patients greatly improved.

Evaluation of the effectivity and feasibility of applying ALHYDRAN[®] professionally scored respectively 6.75 and 7.5 on a scale of 10. Only 1 patient showed a much more scaly skin after one week of use and in this patient precautionally the ALHYDRAN[®] was stopped.

Conclusion

Applying ALHYDRAN[®] in patients having an itchy, scaly and dry skin because of underlying chronic venous insufficiency, may decrease the (often undesired) topical use of corticosteroids.



Presented at the World Union of Wound Healing Societies (WUWHS), Florence, Italy, September 25-29, 2016

ALHYDRAN[®] is a product of BAP Medical - Medical care for the skin. More information: WWW.ALHYDRAN.CO.UK or WWW.ALHYDRAN.NL

CLINICAL STUDY

Presented at the European Burn Association (EBA), Rotterdam, the Netherlands, 2018
OSCARE - Organisation for burns, scar after-care and research, Antwerp, Belgium



The effect of a topical cream application on water distribution in healthy skin and burn scars: pilot project

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¹ OSCARE, Organisation for burns, scar after-care and research, Antwerp, Belgium
² KU Leuven, Department of Rehabilitation Sciences, Belgium

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Objectives:

Moisturizing is an essential part of scar management. However, the evidence for topical applications is poor or lacking in skin and scar research. The study aimed to investigate baseline values of water distribution in healthy and scarred skin and to examine the effect of Alhydran[®] (fig. 1) on water distribution in healthy and scarred skin over time.

Results:

The baseline water content values and water distribution parameters for the healthy skin sites and scar sites are presented in table 1. Statistically significant differences between healthy skin and scar sites are found for water content and water distribution (except for gray index) at baseline (p<.001) (table 1).



Fig. 1: Alhydran[®] BAP Medical B.V.



Fig. 2: Corneometer[®] probe MPA 580 Courage Khazaka

Methods:

For this pilot project, 20 healthy skin sites and 20 burn scar sites were included. At baseline, all sites were assessed for water content, using the Corneometer[®] (fig. 2) ¹ and for water distribution, using the Moisture Map[®] (fig. 3) ¹. Water distribution is represented using gray index (derived from original image), corner density, number of intersection lines and number of cells (calculated from segmented image) (fig. 4).

Table 1: Between-group analysis (p-value) at baseline for water content values and water distribution parameters of healthy skin sites and scar sites (mean ± standard deviation).

	Healthy skin site	Scar site	p-value
Water content (AU)	37.3 ± 5.6	28.3 ± 9.9	.001*
Gray index	21.7 ± 5.9	18.5 ± 8.9	.195*
Corner density (%)	3.2 ± 0.7	1.5 ± 0.8	.000*
Intersection lines	679.2 ± 122.8	359.3 ± 153.8	.000*
Cells	357.0 ± 75.6	183.9 ± 83.5	.000*

Thirty minutes after Alhydran[®] application (T30), all outcome measures of healthy skin improve significantly compared to baseline (T0) (p<.018). For the scarred skin a trend towards improvement was noticed, however not significant (ns) (table 2).

Table 2: Within-group analysis over time for the healthy skin sites and scar sites (p-value) with mean difference (T30-T0) ± standard deviation (sd).

	Healthy skin site		Scar site	
	mean T30-T0 ± sd	p-value	mean T30-T0 ± sd	p-value
Water content (AU)	4.1 ± 2.6	.001*	3.5 ± 9.3	ns
Gray index	4.4 ± 4.8	.018*	1.8 ± 5.4	ns
Corner density (%)	0.9 ± 0.7	.003*	0.2 ± 0.6	ns
Intersection lines	151.5 ± 132.2	.006*	45.3 ± 114.5	ns
Cells	102.6 ± 76.6	.002*	25.7 ± 67.2	ns



Fig. 3: Moisture Map[®] Courage Khazaka

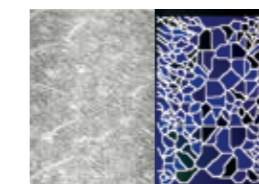


Fig. 4: Original image (left) is transferred into a segmented image (right)

Half of the healthy skin sites and scar sites formed the intervention group and were hydrated with Alhydran[®], while the other half served as controls. Thirty minutes after application, these sites were re-assessed similarly. For the statistical analysis, an independent samples T-test was carried out for the between-group analysis of baseline values. A paired sample T-test was used for the within-group analyses over time.

Conclusion:

The uptake of water after moisturizing differs significantly between healthy skin sites and scar sites. A single Alhydran[®] application shows a significant increase in water content and water distribution after 30 minutes in healthy skin.

In scarred skin, there is a trend in improvement. These results support previous findings that scarred skin is less permeable for a single application than healthy skin. For future research, we would suggest multiple Alhydran[®] applications (at least 3x / day, as described in usage guidelines of Alhydran[®]) on healthy skin sites and scar sites with a longer follow-up period ².

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Presented at the 2nd European Burns Association educational course (EBA), Rotterdam, the Netherlands, 28 & 29 September, 2018

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CASE STUDY

Surgery - Surgical Intervention
Resection of abscess

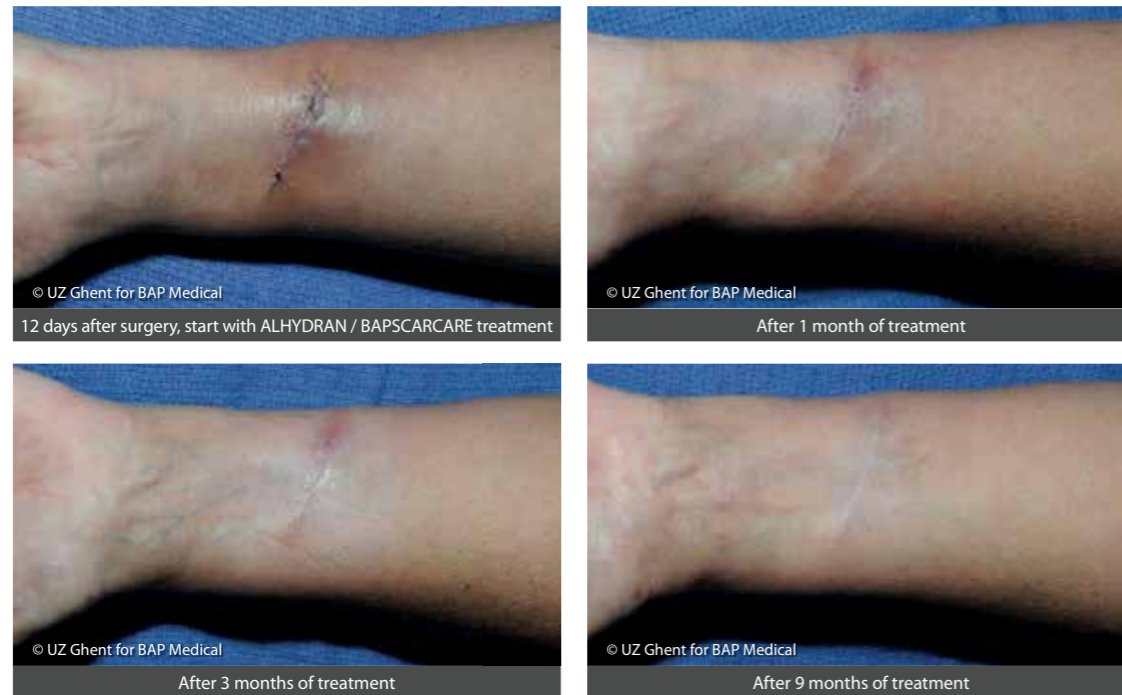
CASE ALHYDRAN and BAPSCARCARE: Surgical Intervention

AL20-015-EN

1. Case study description

patient age	63 years
gender	female
cause	resection of abscess on palmar side of the wrist
therapy after care	start 12 days after surgical intervention during the day; ALHYDRAN 3 times a day, a very thin layer during the night; BAPSCARCARE S

2. Evolution of the wound



3. Conclusions medical team

- Removal of sutures after 12 days and immediately start of treatment
- The combination of a thin silicone sheet during the night and ALHYDRAN during the day resulted in complete scar maturation within 9 months

Case study: H. Hoeksema, Department of Plastic and Reconstructive Surgery, University Hospital of Ghent, Belgium

CASE STUDY

Scars and burns - Hot water burn
Scald (child)

ALHYDRAN

Case ALHYDRAN: Hot water burn (scald)

AL20-001-EN

1. Case study description

patient age	4,5 years
gender	female
cause	hot water burn
treatment to wound closure	modern wound care dressings
therapy after care	1,5 years after wound closure start with ALHYDRAN, after one month completed with pressure therapy

2. Evolution of the wound



3. Conclusions medical team

- The good hydration by ALHYDRAN improves the flexibility of the vulnerable skin and has a positive effect on itching and redness
- The use of pressure garments (after one month ALHYDRAN therapy) has a good effect on the aspect (flattening) of the scar
- The use of ALHYDRAN contributes significantly to the reduction of itching and redness.
- The scar becomes more flexible

4. Patient experience (and parents)

- Improved flexibility of the skin, less itching and redness
- Clear improvement of the mobility and a visual improvement of the look of the scars

Case study: C. Sukan, Lotus MDC, Ankara, Turkey

CASE STUDY

Scars and burns - Flame burn
Flame burn lower leg

AL20-002-EN

Case ALHYDRAN: Flame burn (lower) leg

1. Case study description

patient age	15 years
gender	female
cause	flame burn
treatment to wound closure	1 week Flammazine, thereafter hydrocolloid gel + Jelonet as wound dressing and light therapy to enhance wound healing
therapy after care	ALHYDRAN, immediately after wound closure pressure garments and Silicone sleeve + hydration with ALHYDRAN (2 to 3 times a day) after one year follow up with ALHYDRAN alone

2. Evolution of the wound



3. Conclusions medical team

- Wound healing after 19 days
- Evolution to complete maturation within 1 year, with excellent results regarding to color (slight hypo pigmentation) and elasticity of the scar
- Absolutely no hypertrophic scarring and impairment of mobility

4. Patient experience (and parents)

- The patient was originally not very excited by the typical Aloe Vera smell of the ALHYDRAN
- However this patient was very satisfied by the other properties of the cream such as easiness of application and the hydration after application, resulting in much better suppleness of the skin
- Less itching was noticed by this young girl

Case study: Prof. S. Monstrey and H. Hoeksema, University Hospital Ghent – department of Plastic and Reconstructive Surgery and Burns Center, Belgium

ALHYDRAN

CASE STUDY

Scars and burns - Second degree burn
Firework burn

AL20-005-EN

Case ALHYDRAN: Second degree burn

1. Case study description

patient age	45 years
gender	male
cause	fireworks burn
treatment to wound closure	Flammazine
therapy after care	5 weeks post accident start with ALHYDRAN, 3 daily doses, brought on thick during the first few weeks

2. Evolution of the wound



3. Conclusions medical team

- Deep second degree burn with serious ankle damage
- Therapy starts with Flammazine, patient evolves well, only a lot of complaints on itching of closed skin
- After 5 weeks: start with ALHYDRAN on the freshly closed skin, 3 times per day
- ALHYDRAN had good result on the skin, which improved rapidly
- Itching complaints disappeared immediately when ALHYDRAN was used

4. Patient experience

- Flammazine gave a lot of itching problems
- Upon start of the treatment with ALHYDRAN, immediate reduction of itching
- Therapy: 3 daily doses, or each time the skin was itching
- After 6 months, the skin was soft and calm, patient started sporting again
- Skin looks good and calm now
- After 18 months, maintenance of 1 daily dose of ALHYDRAN

Case study: K. Veel MD PhD, AAB Aruba

CASE STUDY

Scars and burns - Scald

Hot water burn from exploding radiator

AL20-010-EN

Case ALHYDRAN: Scald (hot water from exploding radiator)

1. Case study description

patient age	52 years
gender	male
cause	scald (hand, face, chest)
treatment	ALHYDRAN (twice a day)

2. Evolution of the skin



3. Conclusions medical team

- Positively surprised at fast results & healing process
- Patient indicated absence of pain and itching
- Uneventful healing process within 4 weeks

4. Patient experience

- No pain or itching
- Rapid healing, can resume activities
- Easy application ALHYDRAN, no fragrance

Case study: Dr R. Ceulen, Dermatologist, Albert Schweitzer Hospital, Dordrecht, the Netherlands

ALHYDRAN

CASE STUDY

Scars and burns - Chemical explosion

Second to third-degree burns

AL20-011-EN

Case ALHYDRAN: Burn caused by chemical explosion

1. Case study description

patient age	58 years
gender	male
cause	burn scar after explosion
treatment to wound closure	Flamazine and daily dressing change
therapy after care	ALHYDRAN, pressure gloves, scar therapy by skin therapist, endermotherapy

2. Evolution of the skin



3. Conclusions medical team

- Fast healing
- Improved restoration skin hydration
- Visibly improved supple skin
- Reduction squamae, ie. skin particles

4. Patient experience

- Skin has stopped itching
- Improved flexibility of the skin
- Reduced contractions
- Easy to apply

Case study: Ms J.M. de Graaf and Ms C.T.M. Rijkenberg, Practice Skin Therapists, Oosterbeek, the Netherlands

CASE STUDY

Scars and burns - Hot water burn
Deep second degree burns

AL20-017

Case ALHYDRAN and SCARBAN: Hot water burn

1. Case study description

patient age	84 years
gender	female
cause	Trauma after stumbling with a pot of hot tea. The patient landed on her knees and the pot of hot tea fell over the patient's left shoulder.
why scar treatment	Development of a hypertrophic scar after deep second degree burns on the patient's back. This scar caused itching and pain with moving.
start scar treatment	3 and a half months after trauma
therapy	- ALHYDRAN and SCARBAN for a duration of 13 months. - SCARBAN Elastic sheets were used for 12 hours during the day. - In the evening the sheets were removed. At that time ALHYDRAN was applied for the night. - In the morning after showering the SCARBAN Elastic sheets were re-applied.

2. Evolution of the scar



3. Conclusions medical team

- Results above expectations
- Nice improvement of the quality of life for the patient.
- Scar quality has clearly improved and functionality improved.

4. Patient experience

- Patient is very satisfied after treatment
- Changes of the silicon sheets were time-consuming at times, but they knew what they did it for.
- Patient does not experience any itching or pain anymore.

Author: E. Harink, MSc, Nurse Practitioner, Department Vascular Surgery, Hospital Isala Zwolle, a Dutch Case Report

CASE STUDY

Aesthetic intervention - Soft surgery
PlexR treatment

ALHYDRAN

AL20-016-EN

Case ALHYDRAN: Soft surgery aftercare

1. Case study description

patient age	54 year
gender	female
cause	soft surgery to firm up skin and reduce wrinkles
treatment	PlexR treatment
aftercare therapy	- start applying ALHYDRAN immediately after PlexR treatment (2 to 3 times daily) - light cooling of the skin during the first 4 days (do not wet) - dab on after 4 days (do not rub)

2. Evolution of the skin



3. Conclusions medical team

We perform a number of aesthetic interventions in our clinic using a PlexR device. High-energy plasma is used to burn the skin, resulting in skin contraction. Alhydran® is used for aftercare.

- Wound healing is accelerated. The period of skin redness after the treatment is significantly reduced
- Much less hyperpigmentation
- The healing process is more efficient than with aqueous products. An aqueous cream causes scabs to fall off too quickly.
- The healed wound is virtually scar-free
- Strong reduction of itching complaints following the treatment

4. Patient experience

- Alhydran is easy to apply (spreads well and is quickly absorbed)
- Recovery feels and is visibly rapid
- Flexible skin after treatment

Case study: MD E.R. Berends, Perfect Look Clinic, Westerbork, the Netherlands

CASE STUDY

Donor site - Treatment of donor site

ALHYDRAN

Case ALHYDRAN: Donor site

AL20-012-EN

1. Case study description

patient age	13 years
gender	female
cause	donor site
treatment to wound closure	epidermal skin substitute
therapy after care	ALHYDRAN, immediately after wound closure pressure garments and hydration with ALHYDRAN (2 to 3 times a day)

2. Evolution of the wound



3. Conclusions medical team

- Full wound closure within 14 days
- Evolution to complete maturation within 1 year, with excellent results regarding to color (slight hypo pigmentation) and elasticity of the donor site
- Significantly less redness and itching during maturation

4. Patient experience (and parents)

- No significant pain during wound healing
- No significant itching during the treatment, before nor after wound closure
- Good flexibility and feel of the skin on the donor site

Case study: Prof. S. Monstrey and H. Hoeksema. University Hospital of Ghent – department of Plastic and Reconstructive Surgery and Burns Centre, Belgium

CASE STUDY

Radiotherapy - Radiotherapy (after care)
Mastectomy with axillary dissection

Case ALHYDRAN: Radiotherapy (after care)

AL20-006-EN

1. Case study description

patient age	68 years
gender	female
diagnosis	mastectomy with axillary dissection
therapy after care	started with ALHYDRAN (3 times daily) immediately after radiotherapy

2. Evolution of the skin



3. Conclusions medical team

- ALHYDRAN ensures that the radiated area is less inflamed, red and painful
- ALHYDRAN ensures that the skin heals optimally. As a result of the good and rapid healing, the follow-up phase can be started earlier
- ALHYDRAN is pleasant to use and simple to apply

4. Patient experience

- ALHYDRAN ensures less pain and redness
- There is noticeably rapid improvement to the radiated area
- ALHYDRAN is pleasant to use

Case study: Ms M. voor 't Hekke, Skin Therapist, Zwolle, the Netherlands

CASE STUDY

Radiotherapy - Treatment during and after radiotherapy
Breast carcinoma

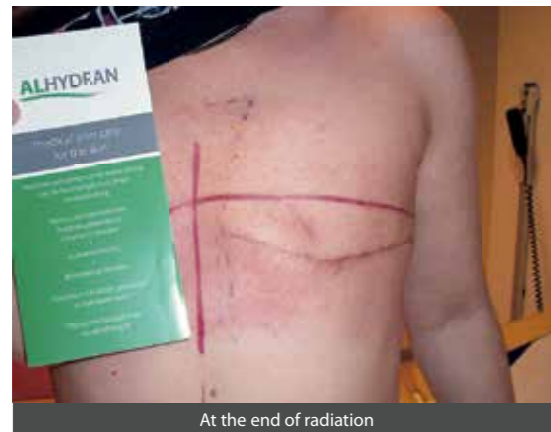
Case ALHYDRAN: Radiotherapy

AL20-007-EN

1. Case study description

patient age	42 years
gender	female
diagnosis	breast carcinoma
therapy after care	ALHYDRAN during and after the radiation period

2. Evolution of the skin



At the end of radiation



2 months after radiation and treatment with ALHYDRAN

3. Conclusions medical team

- ALHYDRAN is a good alternative for cetomacrogol
- Patients are almost always positive about its use
- ALHYDRAN is better than an Aloe Vera gel only, due to hydrating properties of ALHYDRAN
If only a gel is used, the radiated skin will become too dry and flaky
- ALHYDRAN is used with grade I and II radiation dermatitis

4. Patient experience

- ALHYDRAN is better than an indifferent cream (cetomacrogol), because ALHYDRAN eliminates the pain of radiation skin burn
- ALHYDRAN reduces itching
- ALHYDRAN was easy to apply and has a neutral odour

Case study: N.S. Russell, radiotherapist, Netherlands Cancer Institute (NKI), Antoni van Leeuwenhoek Hospital, Amsterdam, the Netherlands

CASE STUDY

Chronic wound - Wound edges and peri wound skin
Chronic wound after open fracture luxation

Case ALHYDRAN: Chronic wound

AL20-004-EN

1. Case study description

patient age	79 years
gender	female
cause	open fracture luxation, right ankle with osteosynthesis material post operation, a chronic wound developed
treatment to wound closure	- curettage and hydrogel on wound - wound borders with ALHYDRAN
therapy after care	ALHYDRAN

2. Evolution of the wound



© ZNA for BAP Medical

Post operation removal of OS material. Irritation around the wound. Treatment: Hydrogel in the wound, ALHYDRAN around the wound.



© ZNA for BAP Medical

3 days before curettage of the wound



© ZNA for BAP Medical

3 days after curettage of the wound



© ZNA for BAP Medical

10 days after curettage and treatment with ALHYDRAN

3. Conclusions medical team

- After luxation fracture and the operation with osteosynthesis material, the wound had never been closed
- Due to the presence of the characteristics of a chronic wound with underlying OS material, there is a big chance of deeper infections and the wound will be very difficult to close
- OS material was removed laterally
- The wound borders have improved significantly due to treatment with ALHYDRAN
- In the after care only ALHYDRAN was used

Case study: E. Roovers, Wound Care Coordinator, Ziekenhuisnetwerk Antwerpen (ZNA), Belgium

CASE STUDY

Actinic keratosis - Multiple actinic keratosis
Serious skin reaction after 5-ala PDT treatment

Case ALHYDRAN: Multiple actinic keratosis

AL20-009-EN

1. Case study description

patient age	81 years
gender	male
diagnosis	- actinic keratosis of the scalp - day 1 after PDT, patient was seen during an emergency consultation with serious reactions: inflamed erythema, erosions, crusting
treatment	a single session of 5-ala PDT
therapy after care	ALHYDRAN twice daily

2. Evolution of the skin



Start of ALHYDRAN as a single treatment, applied twice a day



Day 7 after starting ALHYDRAN

3. Conclusions medical team

- Treatment with ALHYDRAN gives a good and quick clinical improvement (within a week)

4. Patient experience

- Complaints of pain disappeared within 48 hours
- ALHYDRAN had a cooling effect

Case study: Dr R. Ceulen, Dermatologist, Albert Schweizer Hospital, Dordrecht, the Netherlands

CASE STUDY

Actinic keratosis - Erosive skin
Erosive skin after 5-Fluorouracil treatment

Case ALHYDRAN: Erosive skin

AL20-008-EN

1. Case study description

patient age	70 years
gender	male
diagnosis	actinic keratosis (skin cancer)
treatment	3 weeks twice daily application of 5-Fluorouracil
therapy after care	after 3 weeks start ALHYDRAN

2. Evolution of the skin



3 weeks after application of 5-Fluorouracil (start of ALHYDRAN)



3 weeks after start of treatment with ALHYDRAN

3. Conclusions medical team

- ALHYDRAN is easy to apply to mildly erosive skin
- ALHYDRAN is a pleasant alternative to fusidic acid cream
- ALHYDRAN does not entail a risk of bacterial resistance, unlike fusidic acid cream
- ALHYDRAN keeps the skin slightly oily and hydrated
- ALHYDRAN also promotes wound healing

4. Patient experience

- ALHYDRAN is easy to apply
- Nice to use, does not sting
- Noticeable result in just a couple of days
- ALHYDRAN also works well on grazes

Case study: Dr D. Njoo, dermatologist, Hospital Group Twente, Hengelo (Ov.), the Netherlands

CASE STUDY

Actinic keratosis - Treatment during and after radiotherapy
Treated with cryotherapy

AL20-013-EN

Case ALHYDRAN: Actinic keratosis

1. Case study description

patient age	72 years
gender	male
diagnosis	actinic keratosis
treatment	patient had 2 actinic keratosis on the scalp both lesions were treated with 2 cycles of liquid nitrogen spray treatment
therapy after care	ALHYDRAN cream twice daily for 14 days

2. Evolution of the wound



3. Conclusions medical team

- The treated skin areas closed after 14 days, leaving no scar formation or hypopigmentation
- ALHYDRAN is easy to use and has no local side effects
- ALHYDRAN can be used as an alternative for fusidinic acid cream
- In contrast to fusidinic acid, ALHYDRAN does not cause bacterial resistance
- ALHYDRAN cream proved to heal wounds rapidly

4. Patient experience

- Easy in use
- No skin irritation or other side effects
- Fast clinical results, within a few days

Case study: Dr D. Njoo, dermatologist, Hospital Group Twente, Hengelo (Ov.), the Netherlands

CASE STUDY

Chronic skin disorder - Eczema
Atopic eczema

ALHYDRAN

AL20-014-EN

Case ALHYDRAN: Atopic eczema

1. Case study description

patient age	22 years
gender	female
diagnosis	atopic eczema patient had suffered from atopic eczema since childhood, the patient was reluctant to use local corticosteroids as she feared atrophy of the skin. The eczema is quite persistent and recurring, especially inside the elbows
treatment	ALHYDRAN cream twice daily, monotherapy inside the elbows

2. Evolution of the skin



3. Conclusions medical team

- The eczema decreased strongly within 2 weeks
- Monotherapy with ALHYDRAN cream proven to be effective in mild eczema cases
- ALHYDRAN delivered results comparable with a local corticosteroid
- ALHYDRAN had no side effects, in particular no skin atrophy

4. Patient experience

- Easy to apply and quickly absorbed
- No skin irritation or other side effects
- More confidence in the product, as there are no side effects such as atrophy

Case study: Dr Njoo, dermatologist, Hospital Group Twente, Hengelo (Ov.), the Netherlands

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ALHYDRAN

medical after care
for the skin




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