Comparison of salicylic acid and urea versus ammonium lactate for the treatment of foot xerosis. A randomized, double-blind, clinical study.

Abstract
Xerosis is defined as dehydration of skin characterized by redness, dry scaling, and fine crackling that may resemble the crackling of porcelain. The present double-blind trial was a randomized paired comparison study evaluating the keratolytic effect of 5% salicylic acid and 10% urea ointment (Kerasal) on one foot and 12% ammonium lactate lotion (Lac-Hydrin) on the other foot in mild-to-moderate xerosis. Seventy patients were initially enrolled in the trial. Fifty-four patients were evaluated after 2 weeks of treatment; of those 54 patients, 39 were evaluated after 4 weeks of treatment. Although there was significant improvement in severity of xerosis after 2 and 4 weeks of treatment, there was no statistically significant difference between treatment groups. Irrespective of the mechanism of action, this study shows that both Kerasal and Lac-Hydrin 12% lotion result in reduction in the severity of xerosis after 4 weeks of therapy.

Atopic xerosis: employment of noninvasive biophysical instrumentation for the functional analyses of the mildly abnormal stratum corneum and for the efficacy assessment of skin care products.

Abstract
The subtle dryness of the skin surrounding the lesions of atopic dermatitis (AD) is called atopic dry skin or atopic xerosis (AX). AX is more susceptible to the development of AD skin lesions under various environmental stimuli than the clinically normal skin of the people who have or have had or will have AD, which might be called normal atopic skin (NAS) that shows no functional differences as compared to the skin of normal individuals. Routine histopathologic studies of AX that involve the invasive procedures of biopsy are not so helpful in clarifying the underlying pathogenesis. Modern, noninvasive biophysical instrumentation provides rich and quantitative information about various functional aspects of skin. The stratum corneum (SC) of AX reveals not only decreased hydration but also mildly impaired barrier function demonstrable as an increase in transepidermal water loss, elevated pH values, and an increased turnover rate of the SC consisting of thick layers of smaller-sized corneocytes. These data suggest that AX is related to mildly increased epidermal proliferation as a result of the presence of subclinical cutaneous inflammation. Although AX skin does not display any impairment in the recovery of barrier function after physical skin irritation by tape-stripping, it produces a much more severe, long-lasting inflammatory response together with a delay in barrier repair after chemical irritation such as that induced by sodium lauryl sulphate. The SC of AX is biochemically characterized by reduction in the amounts of ceramides, especially ceramide I, sebum lipids, and water-soluble amino acids. None of these changes in SC functions are seen in NAS, which includes not only the normal-looking skin of AD patients long after regression of all active lesions but also of latent atopic skin such as neonates who later develop AD. This suggests that all of the observed functional as well as biochemical abnormalities of AX are a reflection of subclinical inflammation. The presence of the underlying inflammation in AX also differentiates it from senile xerosis. The mildly impaired SC functions of AX can be improved by daily repeated applications of effective moisturizers, i.e., corneotherapy, which is effective in preventing the exacerbating progression of AX to AD resulting from inadvertent scratching of the skin that facilitates the penetration of environmental allergens into the skin. The biophysical confirmation of such efficacy of moisturizers, including cosmetic bases on the mildly impaired barrier function and decreased water-holding capacity of the SC of AX, definitely substantiates the importance of skin care for the cosmetic skin problems that affect every individual in the cold and dry season ranging from late autumn to early spring.
Role of topical emollients and moisturizers in the treatment of dry skin barrier disorders.

Abstract
Emollients and moisturizing creams are used to break the dry skin cycle and to maintain the smoothness of the skin. The term 'moisturizer' is often used synonymously with emollient, but moisturizers often contain humectants in order to hydrate the stratum corneum. Dryness is frequently linked to an impaired barrier function observed, for example, in atopic skin, psoriasis, ichthyosis, and contact dermatitis. Dryness and skin barrier disorders are not a single entity, but are characterized by differences in chemistry and morphology in the epidermis. Large differences also exist between moisturizing creams. Moisturizers have multiple functions apart from moistening the skin. Similar to other actives, the efficacy is likely to depend on the dosage, where compliance is a great challenge faced in the management of skin diseases. Strong odor from ingredients and greasy compositions may be disagreeable to the patients. Furthermore, low pH and sensory reactions, from lactic acid and urea for example, may reduce patient acceptance. Once applied to the skin, the ingredients can stay on the surface, be absorbed into the skin, be metabolized, or disappear from the surface by evaporation, sloughing off, or by contact with other materials. In addition to substances considered as actives, e.g. fats and humectants, moisturizers contain substances conventionally considered as excipients (e.g. emulsifiers, antioxidants, preservatives). Recent findings indicate that actives and excipients may have more pronounced effects in the skin than previously considered. Some formulations may deteriorate the skin condition, whereas others improve the clinical appearance and skin barrier function. For example, emulsifiers may weaken the barrier. On the other hand, petrolatum has an immediate barrier-repairing effect in delipidized stratum corneum. Moreover, one ceramide-dominant lipid mixture improved atopic dermatitis and decreased transepidermal water loss (TEWL) in an open-label study in children. In double-blind studies moisturizers with urea have been shown to reduce TEWL in atopic and ichthyotic patients. Urea also makes normal and atopic skin less susceptible against irritation to sodium laurilsulfate. Treatments improving the barrier function may reduce the likelihood of further aggravation of the disease. In order to have optimum effect it is conceivable that moisturizers should be tailored with respect to the epidermal abnormality. New biochemical approaches and non-invasive instruments will increase our understanding of skin barrier disorders and facilitate optimum treatments. The chemistry and function of dry skin and moisturizers is a challenging subject for the practicing dermatologist, as well as for the chemist developing these agents in the pharmaceutical/cosmetic industry.

Urea: a comprehensive review of the clinical literature.

Abstract
INTRODUCTION:
Urea is an organic compound that has been used clinically for dermatological diseases for more than a century. Urea is a potent emollient and keratolytic agent, making urea an effective monotherapy for conditions associated with dry and scaly skin. A systematic review of the literature is needed to provide clinicians with evidence-based applications of urea in the treatment of dermatological diseases.

METHODS:
A PubMed search was conducted using the term "urea" combined with "skin," "ichthyosis," "psoriasis," "xerosis," "emollient," "onychomycosis," "dermatitis," and "avulsion." A total of 81 publications met inclusion criteria and were evaluated. Treatment indication(s), test agents, number of subjects, treatment protocols, results, and side effects were recorded.

RESULTS:
Effective treatment with urea has been reported for the following conditions: ichthyosis, xerosis, atopic dermatitis/eczema, contact dermatitis, radiation induced dermatitis, psoriasis/seborrheic dermatitis, onychomycosis, tinea pedis, keratosis, pruritus, and dystrophic nails. Furthermore, urea has been used
with other medications as a penetration enhancing agent. Mild irritation is the most common adverse event, proving urea to be a safe and tolerable topical drug without systemic toxicity.

**DISCUSSION/CONCLUSION:**
Urea is a safe, effective dermatologic therapy with wide-ranging clinical utility and minimal, non-systemic side effects. In order to optimize patient care, dermatologists should be well informed with regards to urea's indications and efficacy.

**Long-term emollient therapy improves xerosis in children with atopic dermatitis.**


**Abstract**

**BACKGROUND:**
Hydration with topical emollients forms the backbone of treatment for mild atopic dermatitis (AD), but few randomized controlled trials have assessed their efficacy in young children.

**OBJECTIVES:**
Assess the efficacy and tolerability of long-term emollient therapy in the treatment of moderate to severe xerosis in young children with AD.

**METHODS:**
This was a phase III, multicentre, double-blind, randomized, vehicle-controlled trial. Children (n = 251) aged 2-6 years with AD-associated xerosis were randomized 1:1 to a 28-day treatment with an emollient combining glycerol and paraffin or its vehicle. Non-responders at the end of the double-blind period were treated open label with emollient until day 84. Responders stopped treatment until reassessment on day 56. Those who relapsed after stopping treatment were treated open label with emollient until day 84.

**RESULTS:**
During the double-blind period, xerosis score (XS) of the scoring atopic dermatitis (SCORAD) index, objective SCORAD and visual analogue score decreased and skin hydration increased more in the emollient group than in the vehicle group (P < 0.001 for all measures). More patients were responders with emollient than with vehicle (66.1% vs. 45.6%, P < 0.001). During the open-label period, stopping emollient treatment led to relapse but improvement returned if treatment was restarted with emollient. Regular use of the emollient also yielded improvement in children who did not initially respond. Adverse events were similar in the two groups, and no treatment-related severe adverse events were reported.

**CONCLUSIONS:**
Long-term therapy with emollient is effective and well tolerated for the treatment of xerosis in children with atopic dermatitis.

**Clinical evaluation of 40% urea and 12% ammonium lactate in the treatment of xerosis.**


**Abstract**

**BACKGROUND:**
Urea and ammonium lactate are used for the treatment of xerosis, with different degrees of success. This study compares the clinical effectiveness of these two agents.

**OBJECTIVE:**
To compare the effectiveness and tolerance of a 40% urea topical cream (Carmol 40) from Doak Dermatologics, a subsidiary of Bradley Pharmaceuticals, Inc., and 12% ammonium lactate topical lotion (Lac-Hydrin 12%) from Westwood Squibb, a division of Bristol-Myers Squibb.
METHODS:
A randomized, double-blind, bilateral paired comparison study was conducted involving 25 men and women who were undergoing treatment for moderate to severe xerosis. The study included evaluations upon initiation of the study, after a 14-day treatment period and treatment follow-up on day 28.

RESULTS:
Eighteen study participants completed the entire 28-day evaluation period. Evaluation of treatment benefit was based on instrumental measurement of water loss from the skin surface, skin capacitance, skin desquamation, skin roughness, subject self assessment of skin and investigator evaluation. Results indicated that clinical observation ratings by patients and investigators, as well as instrument measures, show differences between the two treatments. Most measures show that improvement is achieved in less time with 40% urea cream than with 12% ammonium lactate lotion. On day 14, the 40% urea cream was superior to the 12% ammonium lactate lotion as measured by skin roughness, fissure reduction, thickness and dryness.

DISCUSSION:
At day 14 of treatment, 40% urea cream was superior to 12% ammonium lactate for most of the instrumental and clinical assessments

A comparative study of lactic acid 10% and ammonium lactate 12% lotion in the treatment of foot xerosis.

Abstract
Xerotic skin is a pattern of reaction to a variety of disorders that have abnormalities of desquamation in common. This double-blind, randomized clinical trial investigated the effect of Lactinol (Pedinol Pharmaceuticals, Farmingdale, New York) versus Lac-Hydrin 12% (Bristol-Myers Squibb, Princeton, New Jersey) lotion in mild to moderate foot xerosis. Clinical assessment of xerosis was performed at baseline visit, and the designated sites were evaluated at 2 and 4 weeks after treatment began. Of the 53 patients enrolled, 18 were excluded from analysis. Although both treatment groups had significantly improved xerosis scores after 2 and 4 weeks of treatment, no statistically significant difference was observed. Of the 44% of patients who did express a preference, 72% preferred Lactinol, which may account for the 20% increase in its overall use in the study.