Urea ointment (40%)

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Urea ointment (40%) is a tissue softener that has been used under occlusion for the chemical avulsion of nails and for the treatment of palmoplantar keratoderma.[1] It is not effective for the avulsion of normal nails (non-dystrophic nails).[1] It can also be used topically for the treatment of calluses.

40% UREA OINTMENT[1]

Urea 40 g
Anhydrous lanolin 20 g
White wax 5 g
White petrolatum 35 g

The patient is asked to cover the normal skin surrounding the affected nail plate with Micropore tape. Urea ointment is then smoothed onto the nail surface, which is then covered with a piece of plastic film wrap. This is then covered with a layer of Micropore tape. The patient is instructed to keep the area completely dry using plastic gloves and to return after 5 to 10 days. The treated nails are then removed by cutting away the abnormal portions using a bone spatula and a nail cutter. This is followed by curettage until clinically normal nail is reached at all margins.

For the treatment of onychomycosis, 40% urea ointment is ideally combined with oral or topical antifungal agents such as bifonazole 1% cream.[2-5]

When using bifonazole in combination, the patient is asked to apply 1% bifonazole cream and 40% urea ointment under occlusion to the affected nails during the first phase of treatment. This is renewed every 24 hours after elimination of the cellular debris with a plastic spatula. This treatment is continued for 15 days. During the second phase, 1% bifonazole cream is applied every day for 6 weeks.[6]

Forty percent urea ointment may help remove hypertrophic or dystrophic psoriatic nails. Subsequent topical therapy to the denuded nail bed and proximal nail fold can result in regrowth of nail folds.[6]

ROLE OF THE INGREDIENTS

Urea

Urea is soluble in water and alcohol, and has marked hydrating properties. It attracts and holds water, resulting in transepidermal water migration. High concentrations of urea dissolve proteins and can be used as a denaturant.[7] The ability of urea to macerate dystrophic nails has been attributed to a 'proteolytic effect',[8] but others attribute the maceration to the hydrating properties of urea.[9]

Lanolin

Hydrous wool fat is a purified fat-like substance of sheep, with a water content of 25-30%. Anhydrous

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lanolin is lanolin that contains not more than 0.25% of water. Lanolin has been used as an emollient and protective in the past, but is used sparingly nowadays because of its sensitization potential.

White petrolatum

Petrolatum is a white unctuous mass obtained from crude oil, consisting of hydrocarbons. It is messy, with a tendency to leak through bandages.

White wax

White wax is obtained from the honeycomb of trees. It consists of esters of monohydric alcohols esterified with fatty acids. Its role appears to be to stiffen the formulation so that it does not spread to the surrounding skin.

ADVERSE REACTIONS

Irritation and erosive dermatitis may occur. Use of urea in excoriated or fissured skin can produce stinging and irritation. These adverse effects are related to the high acidity of the preparations (usually pH 3 or less).[10]

ROLE OF 40% UREA IN CONTEMPORARY PRACTICE

Forty percent urea is a valuable adjunct along with oral or topical antifungal agents for treating onychomycosis. Chemical avulsion with 40% urea ointment is essentially painless and apparently without risk of infection or hemorrhage, which is advantageous for treating patients with diabetes mellitus and others with vascular insufficiency and neuropathy of the digits.

The combination of 40% urea ointment with 1% bifonazole cream is a useful option in those with a contraindication for or unwilling to use oral antifungal agents. The combination seems appealing for treating children and the elderly, in whom the side effects of oral antifungals would be a valid concern.

There have been no studies comparing the efficacy of antifungal nail lacquers like 8% ciclopirox olamine or 1% amorolfine vs. 40% urea ointment with or without 1% bifonazole. But it appears that nail lacquers are more suitable for treating the more superficial onychomycoses, and as maintenance therapy to prevent recurrence after successful treatment of onychomycosis.

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