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EDITOR: STUART MADDIN

New Drug Spotlight

Penciclovir Cream – A New Treatment for Herpes Labialis

Penciclovir cream (Vectavir™/Denavir™, SmithKline Beecham) is a novel product, approved in 15 countries including the USA and UK, for the treatment of herpes simplex labialis in immunocompetent adults.[2] Herpes labialis (cold sores) is a common skin problem, with 20-40% of the population experiencing lesions by the time they are 50 years of age. This viral infection, uncomfortable and cosmetically disfiguring in otherwise healthy individuals, can cause major morbidity in immunocompromised patients.[1]

Efficacy

In clinical studies, penciclovir cream was significantly better than placebo in reducing lesion-associated pain, and in shortening both healing time and the duration of viral shedding.[3,4]

Two large randomized, multicentre, double-blind, placebo-controlled clinical trials of penciclovir cream have been conducted in patients with a history of frequent herpes labialis. In a US study, 782 patients wer treated with penciclovir cream and 791 with control (vehicle) cream. The median time to lesion resolution in all patients was significantly reduced ($p < 0.001$) from approximately six days (vehicle) to five days (penciclovir). The median time to loss of pain in the penciclovir treated patients was also significantly reduced ($p < 0.001$), and penciclovir recipients ceased viral shedding significantly faster than those who received vehicle alone ($p = 0.003$).[3] A second large clinical trial was conducted in Europe and Canada, where 734 patients received penciclovir cream and 750 received vehicle. Penciclovir treated patients healed 29% faster than placebo recipients ($p = 0.0001$), pain resolved 32% more rapidly ($p = 0.0001$) and the duration of viral shedding was also significantly shortened.[4]

Significant benefits on resolution of pain and lesions occurred both in those groups of patients who initiated penciclovir therapy early (prodrome or erythema stage) and those who started it later (papule stage or later).[3,4]

Side Effects

Topical penciclovir was well tolerated in clinical studies.[3,4] Local side effects occurred in 2.5% of treated patients and 4.1% of those who received placebo.[5] In a dermal tolerance study, 5% penciclovir cream (a five-fold higher concentration than the commercial formulation) and its vehicle produced less irritancy than acyclovir 5% cream.[6]

Safety During Pregnancy & Lactation

Penciclovir cream has not been studied in pregnant women. In rats or rabbits, administration of IV penciclovir did not affect the course and outcome of pregnancy. There is no information on whether penciclovir is excreted in human milk following topical administration. However, following oral administration of the penciclovir pro-drug famciclovir to lactating rats, penciclovir was excreted in breast milk.[5]

Pharmacokinetics

Absorption of penciclovir through the skin seems to be minimal. It was not detected in the plasma or urine of healthy volunteers, following single or repeat application of penciclovir cream, at a dose approximately 67 times that usually used in clinical practice.[5] Penciclovir is poorly absorbed orally.[7]

Mechanism of Action

Penciclovir has potent and selective activity against herpes simplex viruses, acting by inhibiting replication of viral DNA in infected cells[6] through the inhibition of viral DNA polymerase.[8] Penciclovir is phosphorylated by herpes virus thymidine kinases and cellular enzymes to the active triphosphate form.[8]

Dosage and Administration

Penciclovir cream is available in a 2g tube containing 1% penciclovir in a 40% propylene glycol/cetomacrogol cream base.[3,9] It should be applied topically every two hours during waking hours, for a period of four days. Treatment should commence at the first signs or symptoms (e.g. tingling, swelling) of a recurrence.[5,9] Application to mucous membranes is not recommended. The cost of penciclovir cream varies with country, ranging from £4.20 per 2g tube (UK) to $20.58 (USA).

Clinical Assessment

Penciclovir cream is the first antiviral agent to show a consistent effect against herpes labialis, particularly against the pain associated with this condition.[3] *Although its effects on the time to healing and duration of pain were relatively modest, the product has a role to play in the more rapid alleviation of this uncomfortable disease, and provides clinical benefits whether used during the early or later stages of a herpes labialis outbreak.*[4,10]

> *"Frequent application of topical penciclovir beginning soon after the onset of herpes labialis can shorten the time to healing by about a day".*[11]

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Human Skin Equivalent (HSE) , Apligraf®

Part II Clinical Use

Preparation of the wound bed, proper application of Apligraf, and patient compliance with underlying therapy for underlying disease are probably the most important determinants of clinical efficacy.[1,2]

What are the most important things to remember about preparing the wound?[1]

- Debride the wound bed so that it is as clean and free of fibrotic/necrotic tissue as possible.
- After debridement, cleanse the wound bed of debris by irrigating with a sterile, non-cytotoxic saline solution. You may apply gentle pressure to stop bleeding and/or use topical hemostatic agents prior to application.
- Contain bacterial infection.
- Control leg edema and heavy wound exudation with elevation and compression of the leg.
- Implement appropriate therapies for underlying venous insufficiency.

Should antimicrobial agents be used prior to the procedure?

The commensals in venous leg ulcers are generally not associated with the kind of frank infection that would preclude the application of HSE. If necessary, oral, topical or injectable antimicrobial agents may be used for one week prior to application.[1,2] *Several commonly used burn wound antimicrobial agents (including mafenide acetate, polymyxin B sulfate, nystatin and sodium hypochlorite) may have a deleterious effect on HSE. Certain cytotoxic agents (Dakin's solution, mafenide acetate, Scarlet Red dressing, tincoban, zinc sulfate, povidone iodine solution and chlorhexidine) can destroy*

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Medicated Shampoos are Effective in Many Scalp Conditions

Scalp conditions such as itchy scalp, dandruff, seborrheic dermatitis, and scalp psoriasis are common. The emotional effect these complaints cause are often ignored or trivialized, but as dermatologists we should appreciate the relief that appropriate advice and treatment will bring to our patients. These scalp ailments respond to the regular or periodic use of readily available OTC medicated shampoos. Effective medicated shampoos are also available for the treatment of scalp infestations such as ringworm and head lice, replacing the unpleasant-to-use lotions frequently utilized in the past.

Although more than $1 billion dollars are spent annually on medicated shampoos and dermatologists frequently recommend their use, until recently scientific evidence supporting their use was marginal. This mini-review summarizes current information on a group of skin care products, much used by the public but often given insufficient attention by we practitioners.

Dr Stuart Maddin, Editor

Dandruff and Seborrheic Dermatitis

Dandruff and seborrheic dermatitis are generally caused by the Pityrosporum ovale yeast. They are treated with shampoos containing anti-fungal agents, such as ketoconazole, zinc pyrithione, selenium and sulphur.[1]

- *Ketoconazole – Ketoconazole has become our treatment of choice.* A number of studies have shown that ketoconazole 2% shampoo (Nizoral®) is safe and effective in the treatment of seborrheic dermatitis. One multicentre, placebo-controlled clinical trial in 575 patients demonstrated that twice weekly application of this shampoo for 2-4 weeks was highly effective in clearing scalp seborrheic dermatitis and dandruff. Furthermore, weekly prophylaxis prevented a relapse of disease in the vast majority of patients.[2] In animal models, ketoconazole 2% shampoo has been shown to be more effective than zinc pyrithione and selenium sulphide.[3] In addition, although ketoconazole 2% shampoo and selenium sulphide 2.5% shampoo were found to be equally effective in a comparative clinical trial in 246 patients, ketoconazole shampoo was better tolerated.[4] Ketoconazole 2% shampoo was initially prescription only but is now available OTC in most countries except the USA.
- *Zinc pyrithione* (e.g. Head and Shoulders®, zinc pyrithione 1%) shampoo, available OTC, has proven its effectiveness since becoming available in the 1960s. The mechanism of action is more likely to be antimicrobial rather than cytostatic as was once thought.[1]

SkinCap®, is an interesting zinc pyrithione containing formulation with a labelled indication for the treatment of seborrheic dermatitis. This aerosol spray developed by Cheminova International of Madrid, Spain, has recently become available in the US and Canada. Its off-label use for psoriasis has generated considerable interest and controversy. A double-blind, vehicle controlled clinical trial evaluating its use in psoriasis is underway at the University of Minnesota.

- *Selenium* shampoos (e.g. Selsun Blue®, selenium sulfide 1%) have been available since the 1950s. Their mechanism of action is unclear but may be antimicrobial.[1]

Scalp Psoriasis

In a previous *Skin Therapy Letter* (Volume 2, Number 2), we described specific topical gels and lotions for stubborn scalp psoriasis. *For these cases, thick and adherent scaling must be removed by a keratolytic prior to further treatment, potent prescription only products are frequently required and it is often necessary to rotate various treatments.* For less severe cases of scalp psoriasis, coal tar shampoos are popular. However, as discussed in *Skin Therapy Letter* (Volume 1, Number 1), the safety of coal tar preparations is being re-evaluated because of their teratogenic and carcinogenic potential. Alternatives to coal tar shampoos, such as salicylic acid, sulphur or selenium shampoos have not been shown to be particularly effective.[1]

Tinea Capitis

Tinea capitis, or scalp ringworm caused primarily by *Trichophyton tonsurans* or *Microsporum canis*, is still a major childhood problem. The condition can be

treated with oral griseofulvin (with or without selenium sulphide shampoo), oral ketoconazole or ketoconazole 2% shampoo.[5]

- *Ketoconazole – Tinea capitis* is a relatively new indication for ketoconazole shampoo. Dr. Greer has found that in children less than one year of age, shampooing once daily often clears the scalp within two weeks and produces a mycological cure within two to four weeks. In older children, clearance may require four to eight weeks.[6] More recent work from Greer suggests that in both home and institutional settings, ketoconazole shampoo 1% may be sufficiently effective for the prophylactic management of *T. capitis*.[7] Ketoconazole shampoo 2% is not available OTC in the USA.
- Selenium Sulphide – A randomized, placebo-controlled trial in 55 children with *Trichophyton tonsurans* tinea capitis showed that 2.5% selenium sulphide prescription lotion and the less expensive OTC 1% selenium sulphide shampoo were equally effective when given in combination with 15mg/kg/day of griseofulvin. Griseofulvin/selenium sulphide combination therapy was superior to griseofulvin alone.[8]

Pediculosis

Head lice infestations (pediculosis) are a major public health concern worldwide. The product of choice for this condition is permethrin shampoo ("creme rinse"). Shampoos containing lindane, malathion and pyrethrin can also be used but tend to be associated with side effects.[1]

- *Permethrin* – Permethrin 1% creme rinse (Nix®) is available OTC. In a comparative, placebo-controlled, clinical trial in 1040 patients, permethrin 1% creme rinse was significantly ($p < 0.001$) more effective than lindane. Two weeks after treatment, 98% of permethrin 1% creme rinse recipients were louse-free , compared with 76% of those who received lindane shampoo. Erythema, pruritus or other mild dermal reactions occurred in 1.2% of permethrin-treated and 2.6% of lindane-treated patients.[9] This superiority of a single application of permethrin 1% creme rinse over lindane shampoo is also supported by data from additional randomized, controlled studies.[10,11]

Whether a patient has a common dermatological condition such as dandruff; a troublesome chronic condition such as psoriasis; or a parasitic infestation or fungal infection of the scalp; effective, relatively safe, and easy to use medicated shampoos are now available for treatment.

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HSE – Clinical Use *(continued from page 2)*

cellular components of skin and HSE, and following their use, the wound should be thoroughly cleansed with physiological saline before application.[1]

Use of Apligraf[1]

1. *Apligraf is intended for single-use only.* It should be kept on its tray on the medium in an incubator (19-31°C) until ready for use. *It remains viable for up to five days from the moment it is sealed in the pouch.*
2. *Before opening the plastic container, check the pH of the medium* by comparing the colour to the colours on the chart provided. The medium is compromised if the colour is purple, and possibly contaminated if the colour is yellow.
3. Handle the Apligraf as little as possible, and *use sterile technique*.
4. Do not allow the HSE to dry out after opening the package, and *place it on the wound bed within 30 minutes*.
5. *The dermal layer (the glossy layer closest to the medium in the container) should be placed flush with the wound surface.* The epidermal layer (matte, dull finish) should be facing up, exposed to the air. Express any trapped air.[1] HSE must be trimmed to fit inside the edge of the ulcer margins.
6. If *exudate* is a problem, slits (pie-crusting) with a scalpel blade, punch biopsies or shredding may help prevent the HSE from floating off the surface of the wound. To prevent contamination, the holes should be made after HSE has been removed from the media well.[2]
7. *It is very important to immobilize the HSE in contact with the wound bed.* If securing of the HSE is not complete, staples, sutures or other methods should be used to prevent shear or friction.[2] For venous leg ulcers, cover the HSE with a nonadherent primary dressing (e.g. Tegapore® or Mepitel®), then apply a pressure bolster (rolled or folded gauze or a foam plug) and cover the bolster with an elastic wrap/compression bandage.[1]
8. Within one week of application, HSE may appear translucent and cellophane-like. The graft may degrade partially or completely following the initial application. *Degraded HSE may appear yellow and gelatinous, and its similarity to purulent exudate may lead to inappropriate diagnosis of skin infection.* In acute or fresh wounds, HSE appears pinkish or whitish-opaque within 1-2 weeks.[1]
9. *In most cases, one to two applications of HSE will be sufficient;* in a minority of patients, three applications may be necessary. Reapply within six to eight weeks if less than 50% of the original wound area has closed, or if the HSE has not completely adhered to the wound. Do not disrupt healing tissue or adherent HSE, but gently remove nonadherent remnants of the product.[1]

> *In a number of patients, a single application of HSE has converted chronic or non-healing wounds to acute, more responsive wounds. Following the initial application, it may be advisable to wait 8-12 weeks before using a second HSE in order to determine whether or not wound healing has been jump-started and to prevent unnecessary expense.*[3]
>
> Dr Gary Sibbald, Toronto

10. The primary dressing covering the HSE should be inspected and changed at least once a week. Highly exudative wounds may require more frequent changes.[1]

Information for Patients

Patients should be told to expect some scarring but, generally a return of skin colour and a good cosmetic outcome.[4]

Venous leg ulcer patients should elevate their feet as much as possible for the first week after application and the underlying venous disease managed aggressively to prevent recurrence. After the ulcer has healed, they should wear elastic compression stockings delivering 30-40 mm Hg of pressure and have follow-up inspections every three months for one year. It is also important that they maintain proper nutrition.[1]

> *One of the most exciting benefits of HSE therapy is its ability to dramatically accelerate wound closure, up to two to three times faster than conventional multilayer compression therapy. In the pivotal leg ulcer study, HSE closed as many wounds by eight weeks as conventional therapy did by six months and also resulted in a significantly greater number of patients with 100% wound closure. These differences were even more striking with particulary difficult to heal ulcers (larger or of longer duration).*

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Update on Drugs

Class	Name/Company	Approval Dates and Comments
Anti-acne & antipsoriatic	**Tazarotene Gel 0.05%, 0.1%** Tazorac® topical gel *Allergan*	Approved by the FDA June 13, 1997 for the topical treatment of patients with stable plaque psoriasis of up to 20% body involvement, or facial acne vulgaris of mild to moderate severity. Previously approved in Germany and Canada. (Reviewed in Volume 2, Number 4, Pages 1-2.)
Antifungal	**Ketoconazole Shampoo 2%** Nizoral® *Janssen*	Approved by the FDA 30 May, 1997 for the supplemental indication of treatment of tinea (pityriasis) versicolor. Previously granted OTC status as an anti-seborrheic in most countries except the USA.
Glucocorticoid	**Fluticasone proprionate** Cutivate® Cream 0.05% *Glaxo Wellcome*	Approved by the FDA May, 1997 for once daily dosing for eczema patients.
Class	**Name/Company**	**Drug Warning**
Antibiotic	**Amoxicillin/clavulanic acid** Augmentin® *SmithKline Beecham*	The UK Committee on Safety of Medicines recommends that, because of the risk of cholestatic jaundice, amoxicillin should be used instead of Augmentin, unless beta-lactamase producing bacteria are suspected of causing the infection. Use of Augmentin® longer than two weeks increases the risk of jaundice and should usually be avoided.
Anti-HIV	**Indinavir**, Crixivan®, *Merck;* **Nelfinavir**, Viracept®, *Agouron;* **Ritonavir**, Norvir®, *Abbott;* **Saquinavir**, Invirase®, *Roche*	The FDA has issued a letter warning of diabetes mellitus and hyperglycemia developing in patients receiving protease inhibitors. Causality has not been clearly established. These adverse effects occur relatively infrequently, and protease inhibitors should not be discontinued without medical advice.
	Indinavir Crixivan® *Merck*	Prescribing information is to be updated, US and worldwide, to include warnings about the possibility of patients developing hemolytic anemia. According to Merck, 20 cases have been reported in 140,000 patients and no causal link has been established, but this warning is appropriate as the condition needs to be recognized and treated quickly.
Anti-psoriasis Antiproliferative	**Acitretin** Soriatane®, Neotigason® *Roche*	An FDA advisory panel agreed with the position taken by the FDA, in recommending that women taking acitretin avoid pregnancy for at least three years after treatment stops. Although the FDA approved acitretin last year, Roche objected to the labelling proposed and have not yet commenced marketing in the US. In Europe and other markets, the restriction is for two years. (*Scrip* April 25th, 1997: 19)

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