

Skin Therapy Letter[©]

Volume 7 • Number 2 • February 2002

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EDITOR: DR. STUART MADDIN

Alternative Treatments For Atopic Dermatitis: A Selected Review

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ABSTRACT

Atopic dermatitis (AD) is a chronic itchy, inflammatory skin disease that is extremely difficult to treat. Effective therapeutic agents are limited in number, and may have long-term toxic side effects. Frustrated by these realities, many patients stop seeking help from conventional physicians and turn to alternative medical approaches. These can include so-called natural products, herbal products and over-the-counter (OTC) treatments. Herbs and medications share a common history, as most of our well-known medications were derived from plants. However, herbal remedies are largely unregulated. Many may have scientific merit and clinical benefit, but they are still scientifically invalid and inadequately monitored. Dermatologists need information about the effects of herbal remedies in order to better serve their patients.

Key Words: *herbal remedies, dietary supplements, atopic dermatitis*

Atopic dermatitis (AD) is a chronic itchy, inflammatory skin disease that usually develops in early childhood and is commonly seen in individuals with a personal or family history of similar skin disease or asthma. Persistence of AD has been reported in 60% of adults who had the disease as children.¹ It is notorious for its recalcitrant and chronically recurrent nature.¹ Along with the usual therapy of topical steroids, general skin care, and topical antibiotics there are also systemic methods of treating this disorder, which have already been well described.^{2,3}

Because effective medical treatments for this condition are limited in number, many patients have turned to alternative therapies^{1,4}, including so-called natural products, herbal products and OTC treatments, many of which remain unproven.

In a questionnaire study of 227 patients with AD, who had used alternative medicine, the majority stated that their main reason for trying such treatments was the lack of a satisfactory effect from the physician provided therapy. They also reported that the main sources of information about alternative therapies were people without skin disease, and the media. After using alternative treatments, the majority of patients reported no improvement or even aggravation of their skin disorder.⁵

Most patients have heard about at least one friend who improved after receiving a natural treatment. While it may have been the

treatment itself that helped, there may have been other factors as well, e.g., such treatment providers seem to offer a comfortable atmosphere for their clients and often allow them to express their own views of their problems.³ They may also spend more time with them than physicians are willing or able to do.

A system of medical practice making use of all measures that have proven to be of value in the treatment of disease is referred to as allopathic medicine. Occasionally, some of the recommended modalities are intended not to replace conventional medicine, but to complement it. Complementary or alternative medicine can be classified into herbal therapy (treatments using plant species), and non-herbal therapies, such as homeopathy, acupuncture, aromatherapy and more than 10 other modalities.⁶

Herbs

Herbs and medications share a common history, as most of our well-known medications were derived from plants. Herbal remedies are marketed commonly as pills, capsules, tinctures or dietary supplements and are largely unregulated. According to US federal legislation that was enacted in 1994, herbs and other dietary supplements can be marketed without testing for safety or effectiveness. Broad and vague claims are allowed, and the US FDA does not have to approve packaging or sales information

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before a product reaches the market. Consumers essentially have no protection against misleading or fraudulent claims made by herbal manufacturers. Most are not subjected to the strict rigorous approval processes that traditional drugs are. Most have not been tested against the gold standard controlled clinical trial, and thus have no verifiable claim with respect to their safety and efficacy. Products may be contaminated or may contain varying amounts of active ingredients. Some have no active ingredients.⁷ Up to 30% of herbal patent remedies imported from China have been laced with potent pharmaceuticals such as steroids and phenacetin, that should only be available by prescription.⁴

Despite the lack of monitoring and quality control, the public tends to perceive herbal remedies as "natural" and therefore harmless. This misconception can be dangerous not only because of potential risks inherent in the therapies, but also because patients may fail to inform their physician that they are using alternative medicines. Many herbal remedies may have scientific merit and clinical benefit. Most may be safe, effective and reliable. However, adequate testing of herbal remedies and randomized controlled trials are necessary. The reclassification of herbal medicines as substances to be regulated by governmental agency is also essential. Herbal therapy is still scientifically invalid and inadequately monitored.^{4,7} This unconventional practice may be misleading to patients with chronic skin diseases.⁸

General population surveys in the US report that only about 40% of patients discuss the complimentary medicines they take with their physicians. There are at least 25 different forms of complimentary or alternative treatment modality groups.⁹ Dermatologists should consider discussing these treatments with patients, and must be aware of the recent literature available with respect to alternative therapies.¹⁰⁻¹²

Chinese Herbal Treatments

The most commonly used herbal formulations are based on Chinese medicines, and have been reviewed in the literature.^{13,14} Chinese herbs are traditionally used in very complex mixtures where an unknown number of compounds may be acting synergistically.^{14,15} Although the pursuit of the active component may be of paramount importance for research and therapeutic application, the mixture of the herbs work well because of an interaction of different compounds within the mixture. Whether or not Chinese herbal therapy (CHT) contains one or more active compounds, it does represent a potential source of novel therapeutic compounds.¹⁶

Rustin and Poulter¹⁷ describe the principles of CHT along with its history using the yin and yang theory, i.e., traditional Chinese physicians perceive skin disease as a breakdown in the essential relationship between the yin nourishment and yang activity. Such a crisis allows the subsequent invasion of the body by pathogenic factors such as wind, heat and dampness, which further exacerbate the skin. In these circumstances, CHT seeks to rid the hostile pathogens and to realign the fundamental yin and yang balance. Sheehan, et al, published a summary of double blind clinical trials confirming the efficacy of CHT along with pharmacological actions of individual herbal components listed in detail (see Table 1).¹⁸⁻²¹

Zemaphyte®

Very few studies are available regarding the use of traditional CHT products. Sheehan, et al, carried out an 8-week study of 40 adults with long-standing difficult-to-treat AD. This was a double-blind crossover study with patients randomized to receive an oral Chinese herbal mixture known as Zemaphyte® (Phytopharm PLC) or an inactivated herb placebo. There were significant improvements noted in itching, erythema, the ability to sleep, and surface damage in the treatment group. In terms of potency and quantity required, topical corticosteroid use was reduced while on active treatment, when compared to those taking placebo.¹⁸ A similar trial with 47 children showed the same results over 8 weeks of active treatment. The pharmacology and mechanisms of action were unknown. There was no evidence of hematological, renal or hepatic toxicity.¹⁹

A one-year open follow-up study using Zemaphyte® with 37 children from the previous study had 10 (27%) patients withdraw because of inadequate response. Four of the responding patients withdrew early because the treatment was unpalatable. Also, preparation required boiling some of the herbal constituents in 600ml water for 90 minutes, which was considered too long by some patients. Of the remaining 23 patients, seven experienced a 90% reduction in severity and were able to stop the treatment within 6 months to 1 year. Sixteen patients required continuous treatment, though their treatments were reduced from one each day to one every 5 days. In total, 18 out of 23 patients (78%) demonstrated a 90% reduction in severity at the end of the study. A reversible asymptomatic elevation of the transaminase level was seen at 7-14 times normal in two patients. Approximately 33% of the patients had a mild diarrhea in the first few weeks of treatment.²⁰

A further long term open trial, included 17 adult patients²¹ who were volunteers from the original trial.¹⁸ At the end of one year, 12 of the 17 adults, or 71% had a greater than 90% reduction in severity and the other five patients had a 60% reduction in severity. No patients withdrew. There were no laboratory abnormalities seen in these adults, and mild diarrhea was the only major complaint.²¹

An open trial comparing the original decoction used by Sheehan, et al¹⁸ to a new granular preparation showed no difference in efficacy. However, patients receiving the granular preparation did comment on the increased palatability and ease of administration.²²

Commonly, Zemaphyte® (Phytopharm PLC) contains a mixture of 10 herbs with some known pharmacological agents and action. Analysis of these herbs revealed that none of them had nonsteroidal anti-inflammatory activities, but some displayed steroid like or antihistaminic like activities. One ingredient displayed immunosuppressive activity.²³ Latchman, et al, discovered that Zemaphyte® is associated with a reduction of serum IgE complexes and that it targets the immunologic features that seem to be involved in the pathogenesis of AD.²⁴

A more detailed study of the immune mechanisms in the skin of patients with AD using Zemaphyte® and other non-defined

Chinese herbal therapies revealed that there were no significant changes in cell numbers (T-Cell subsets, macrophages, or dendritic cells) in normal skin, but a reduction of CD23 (a low-affinity IgE receptor) - bearing antigen presenting cells was reported.^{25,26} Down regulation of the low-affinity receptors for IgE on antigen-presenting cells in patients with AD may contribute to the benefit observed following treatment with Zemaphyte[®].²⁷ Decreases are also seen in levels of soluble IL-2 receptors and soluble vascular adhesion molecules.¹⁶

mixture of Chinese herbs that she had ingested for about three years.³³ Soderberg³⁴ used an open study design with 9 AD patients taking "herbal medicine" for a 3 week period and found that 5 patients' condition had worsened. Similar drop-outs were reported in an open trial where six of eight patients withdrew because of exacerbation of their disease.³⁵ Other side-effects have been reported with the use of CHT, but not specifically in AD patients.¹⁷

Keane et al.³⁶ studied 11 Chinese herbal creams obtained from patients attending general and pediatric dermatology outpatient

Alternative Rx - Investigators	Herb	Double-blinded	Outcome	Side-effects
Chinese Herbal Therapy - Sheehan et al ¹⁸ , Fung ²⁸	Zemaphyte [®] and generic mixtures	yes	Mixed	Diarrhea, increase in transaminases, Reversible dilated cardiomyopathy, reversible acute hepatic illness related, fatal hepatic necrosis, nephropathy, exacerbation of disease
Chamomile mild extract – Patzelt-Wenczler ³⁹	Kamillosan [®]	yes	Mild superiority vs. 0.5% hydrocortisone; marginal difference vs. placebo	Possible allergic contact dermatitis from non-trade brand
Evening primrose oil – Lovell, ⁴³ Schalin-Karila, ⁴⁴ Wright, ⁴⁵ Gehring, ⁴⁶ Bamford, ⁵⁰ Hederos ⁵¹	Efamol [®] or Epogam [®]	yes	Mixed	Rare
Shiunko – Higaki ⁵²	?	yes	Mixed	?
Witch Hazel – Norman ³⁸	N/A	no	Anecdotal	?
Burdock - Norman ³⁸	N/A	no	Anecdotal	??
Aloe vera - Norman ³⁸	N/A	no	Anecdotal	Allergic contact dermatitis
Oolong Tea – Uehara ⁵⁵	N/A	no	Anecdotal	?

Table 1: Alternative Treatments for Atopic Dermatitis

There have also been negative effects reported for this remedy. In a study using Zemaphyte[®] with 40 patients, 37 completed the trial. There seemed to be a general trend of clinical improvement, however there was no statistically significant treatment effect of the herbal therapy or placebo in the four clinical parameters studied (erythema, surface damage, lichenification, and scaling). Hematological, renal and liver function tests were all normal throughout the trial. The investigators concluded that further research was required to evaluate the efficacy of this herbal medication.²⁸

Other Chinese Herbal Therapies

Reversible dilated cardiomyopathy was reported in one patient who received 2 weeks of therapy from a Chinese herbalist in Soho, London. The CHT mixture contained more than 30 herbal components.²⁹ Two patients suffered a reversible acute hepatic illness after taking traditional Chinese herbs,³⁰ and another patient was reported to have suffered fatal hepatic necrosis.³¹ Another case of hepatotoxicity was reported, though the exact herbs were not stated.³² A 19-year-old female with AD presented with symptomatic nephropathy from aristolochic acid that contained an undefined

clinics. High-resolution gas chromatography and mass spectrometry were used to determine their content. Eight of the 11 creams contained dexamethasone. All of these creams had been used in sensitive skin areas including facies and folds. They concluded that greater regulations need to be imposed on Chinese herbalists to prevent the illegal and inappropriate prescribing of potent steroids.

Herbs

Dried and fresh flowers of the chamomile plant have been used medicinally around the world for many years. In vitro chamomile extracts inhibit both lipoxygenase and cyclooxygenase, and can also inhibit histamine release.³⁸ Kamillosan[®] cream contains a mild chamomile extract as the active ingredient, which demonstrated no chamomile related allergen potential, and has been used for local therapy of AD. In a partially double blind and randomized study carried out as a half side comparison, the cream was compared with hydrocortisone 0.5% cream, and with the vehicle cream as the placebo in patients suffering from medium degree AD. After a 2-week treatment, a mild superiority was demonstrated when compared to hydrocortisone 0.5% and a

marginal difference was found when compared to the placebo.³⁹ However, allergic contact dermatitis from chamomile used in phytotherapy (i.e., the use of vegetable drugs in medicine) has been reported.⁴⁰

Evening primrose oil (Efamol[®], NUMICO) has been reported to benefit children with AD.^{41,42} This medication is usually taken orally. Several randomized, double-blind studies found evening primrose oil to be more effective in treating the signs and symptoms of AD.⁴³⁻⁴⁵ In a vehicle-controlled study of its effect on barrier function in AD, topical evening primrose oil in an amphiphilic and in a stable water-in-oil emulsion was compared in 20 AD patients. Evening primrose oil proved to have a stabilizing effect on the stratum corneum barrier, but this was apparent only in the water-in-oil emulsion and not in the amphiphilic emulsion. Therefore, the vehicle is extremely important.⁴⁶

A defect in the function of the enzyme delta-6-desaturase has been postulated as a factor in the development of AD. The rationale for using evening primrose oil rests in this functional defect. Delta-6-desaturase converts linoleic acid to gamma linoleic acid, and evening primrose oil is rich in gamma linoleic acid.⁴⁷ Supplementation with oral evening primrose oil for AD patients has demonstrated moderate and favorable fatty acid changes in their epidermis.⁴⁸ Topically applied gamma-linoleic acid has also been shown to be effective for treating AD because of its anti-pruritic and anti-inflammatory effects.⁴⁹ However, gamma-linoleic acid (GLA) contains pyrrolizidine alkaloids, which can cause hepatotoxicity with chronic consumption.⁴ No toxicity data for topical preparations of evening primrose oil is available. Data on its effectiveness in treating AD is mixed, however. In a double blind, blocked crossover design with random assignment of 123 patients⁵⁰ and another double blind, placebo-controlled study of 60 AD children in Sweden using Epogam[®] (Scotia) produced similar negative results.⁵¹ AD was unresponsive to evening primrose oil. Treatment of AD with GLA remains controversial.¹¹

Shiunko

Shiunko is a topical medication made from herbal extracts and is used to treat a range of conditions including AD. In a vehicle-controlled study of nine patients, Shiunko was effective in four patients when compared to petrolatum, but in only one patient when compared with 3.5% saltwater. This herb has antibacterial effects on *Staphylococci* and this is the proposed mechanism of action.⁵²

This may be similar to the beneficial effects seen with topical fusidic acid (Fucidin Intertulle[®], Leo Pharma), which is not an herbal preparation, but a topical antibacterial agent.^{53,54} Other alternative remedies listed to help eczema, but not necessarily AD include Witch Hazel, burdock and aloe vera³⁸ and Oolong tea.⁵⁵ Proper studies are very scant.

Herbal Allergens

Cosmetics, shampoos, herbal creams, and ingested herbal remedies and tonics may also contain *Compositae* plant extractions. The *Compositae* family includes plants such as the artichoke, burdock, chamomile, chrysanthemum, marigold,

ragweed, and sunflower. The most common allergen in this family is the sesquiterpene lactones, present in the oleoresin fraction of the leaf, stem, flower and possibly pollen. *Compositae* dermatitis is most frequently seen in middle-aged and elderly people presenting with an air-borne or direct contact dermatitis.³⁷

Conclusion

Plant substances have been used as medicines for thousands of years. Recent research indicates that some herbs offer considerable medicinal benefits. Currently, the level of interest in alternative treatments by the general public continues to increase. Some patients who obtain care from dermatologists use OTC herbal remedies.³⁸

Dermatologists need information about the effects of herbal remedies in order to better serve their patients.³⁸ It is also important for dermatologists to give their patients the opportunity to be heard and understood. The greatest resource is time, and it should be offered and used effectively.²

Acknowledgments

Thanks to R. Gottshalk, S. Maddin, F. Murphy, G.E. Piérard, P. Roth, K. Scully, F. Tabassum, and J. Wismer for their suggestions in preparing his manuscript.

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<i>Anti-acne Agents</i>	Azelaic Acid <i>Finevin[®] Cream 20%</i> Berlex Laboratories	For the topical treatment of mild-to-moderate inflammatory acne.	US FDA
	Clindamycin 1%, Benzoyl Peroxide 5% <i>BenzaClin[™]</i> Dermik Laboratories	Labeling change: the product can now be stored at room temperature for up to 2 months after being dispensed by a pharmacy.	US FDA
	Ethinylestradiol, Norethindrone Acetate <i>Estrostep[®]</i> Pfizer	Additional indication: for the treatment of moderate acne in women over 15 years of age.	US FDA
	Tazarotene <i>Tazorac[®] 0.1%</i> Allergan	For the treatment of acne vulgaris.	US FDA
	Tretinoin Gel <i>Retin-A Micro Microsphere[®]</i> AP Pharma/Johnson & Johnson Canada	For the treatment of acne vulgaris.	TPP – Canada
<i>Antibacterial Agents</i>	Cefuroxime, Dextrose for Injection <i>Zinacef[®]</i> GlaxoSmithKline	For the treatment of skin and skin structure infections, lower respiratory tract infections, urinary tract infections, septicemia, meningitis, gonorrhea, bone and joint infections.	US FDA
	Ciprofloxacin Geneva Pharmaceuticals	ANDA tentatively approved for this generic form of Bayer's Cipro [®] for the treatment of urinary tract, skin and other infections.	US FDA
	Moxifloxacin HCl <i>Avelox[®]</i> Bayer	Additional indication: as a once daily treatment for uncomplicated skin and skin structure infections due to <i>Staphylococcus aureus</i> and <i>Streptococcus pyogenes</i> .	US FDA
<i>Antifungal Agents</i>	Caspofungin Acetate <i>Cancidas[®]</i> Merck	For the treatment of invasive aspergillosis in patients who do not respond to, or cannot tolerate other antifungal therapies.	US FDA
	Butenafine HCl <i>Lotrimin Ultra[®] 1% Cream</i> Schering-Plough	Switched to OTC for the topical treatment of symptomatic inflammatory tinea pedis, tinea cruris and tinea corporis due to <i>Epidermophyton rubrum</i> .	US FDA
	Butenafine HCl <i>Mentax[®] 1% Cream</i> Bertex Pharmaceuticals	Additional indication: for the treatment of tinea (pityriasis) versicolor caused by <i>Malassezia furfur</i> , previously known as <i>Pityrosporum orbiculare</i> .	US FDA
	Clotrimazole, Betamethasone Dipropionate Cream Taro Pharmaceuticals	For the treatment of a variety of fungal conditions. It is bioequivalent to Schering-Plough's Lotrisone [®] cream.	US FDA
<i>Antihistamine</i>	Desloratidine <i>Aerius[™] & Neoclarityn[™] 5mg. tablets</i> Schering-Plough	To be given once daily for the symptoms of chronic idiopathic urticaria in adults and children >12 years of age.	European Commission of the European Union
	Levocetirizine <i>Xyzal[®]/Xusal[®]</i> Sepracor	For the treatment of seasonal allergic rhinitis, perennial allergic rhinitis, and chronic idiopathic urticaria	German Regulatory Authorities
<i>Antimetabolite Agents</i>	Methotrexate <i>Trexall[®]</i> Barr Laboratories/DuPont Pharmaceuticals	For the treatment of neoplastic disease, psoriasis and rheumatoid arthritis. Trexall [®] represents new dosage strengths in 5, 7.5, 10, and 15mg tablets.	US FDA
<i>Antipsoriatic Agents</i>	Calcipotriol, Betamethasone Dipropionate <i>Dovobet[®] Ointment</i> Leo Pharma	For the treatment of psoriasis	TPP – Canada
<i>Antiviral Agents</i>	Varicella Zoster Immune Globulin <i>VariZIG[®]</i> Cangene	This product is a highly purified and specialized antibody against the varicella zoster virus that causes chicken pox.	TPP – Canada
	Valacyclovir HCl <i>Valtrex[®] 500mg. caplets</i> GlaxoSmithKline	A shorter course of therapy: the new 500mg. caplets can be prescribed as a 3-day course administered twice daily.	US FDA
<i>Atopic Dermatitis</i>	Pimecrolimus <i>Elidel[®] Cream 1%</i> Novartis Pharmaceuticals	For the treatment of mild-to-moderate atopic dermatitis in patients >2 years of age.	US FDA

Drug Class	Generic/Trade/ Company Names	Indication	Approving Regulatory Agency
<i>Depigmenting Agents</i>	<i>Xtrac™ Excimer Laser System</i> PhotoMedex	For the treatment of psoriasis and vitiligo.	US FDA
<i>Enzyme Replacement Therapy</i>	Recombinant Human Iduronidase (IDUA) Novazyme Pharmaceuticals	Granted Orphan Drug Status for the proprietary treatment of mucopolysaccharidosis I.	US FDA
	Agalsidase Alfa <i>Replagal™</i> Transkaryotic Therapies (TKT)	For long-term treatment in patients with Fabry's disease.	Norwegian Medicines Agency NZ's Reg. Authority Iceland's Regulatory Authority
	Agalsidase Beta <i>Fabrazyme™</i> Genzyme	For the long-term enzyme replacement therapy in patients with a confirmed diagnosis of Fabry's disease.	European Commission of the European Union
<i>Hair Growth</i>	Eflornithine HCl <i>Vaniqa® Cream 13.9%</i> Westwood-Squibb	For the reduction of unwanted facial hair in women.	US FDA TPP - Canada
<i>HIV/AIDS</i>	Amprenavir <i>Agenerase®</i> Glaxo Wellcome	Conditional Notice of Compliance: to be used with other antiretroviral agents for the treatment of HIV-1 infection.	TPP – Canada
	HIV Drug Resistance Test <i>Trugene® HIV-1 Genotyping Test</i> Visible Genetics	This test can identify which HIV medications have become ineffective because of the virus' mutation in individual patients.	US FDA
	Tenofovir Disoproxil Fumerate <i>Viread®</i> Gilead Sciences	For the treatment of HIV infection when taken in combination with other antiretroviral agents	US FDA
	Valganciclovir <i>Valcyte®</i> Hoffmann-LaRoche	For the treatment of cytomegalovirus (CMV) retinitis in AIDS patients	US FDA
<i>Hormonal Preparation</i>	Transdermal 17-Beta Estradiol <i>Estradot®</i> Novartis Pharmaceuticals Canada	For the treatment of menopausal symptoms and for the prevention of postmenopausal osteoporosis.	Netherlands' Regulatory Authority
<i>Human Skin Construct</i>	Biologically Active Dressing <i>Composite Cultured Skin (CCS)®</i> Ortec International	For patients undergoing hand reconstruction to treat recessive dystrophic epidermolysis bullosa, a rare genetic disorder.	US FDA
<i>Monoclonal Antibody</i>	Infliximab <i>Remicade®</i> Centocor	For the treatment of severe, active and fistulizing Crohn's Disease in adult patients who have not responded to conventional treatment	TPP – Canada
<i>Mouth and Throat Product</i>	Amlexanox <i>Apiheal® 5% Paste</i> Strakan Ltd.	For the treatment of aphthous ulcers.	UK MCA
<i>Neurotoxins</i>	Botulinum Toxin Type A <i>BOTOX®</i> Allergan	Additional indication: for the treatment of glabellar lines associated with corrugator and/or procerus muscle activity.	TPP – Canada
<i>Oncologic Agents</i>	Arsenic Trioxide <i>Trisenox®</i> Cell Therapeutics	Orphan drug designation given for the treatment of multiple myeloma and myelodysplastic syndromes.	European Commission of the European Union
<i>Oral Contraceptive</i>	Drospirenone/Ethinyl Estradiol <i>Yasmin®</i> Berlex Laboratories	Contains the progestin drospirenone, which exhibits antimineralocorticoid activity and influences water and electrolyte balance. Reduces sebum output.	US FDA
<i>Photodynamic Therapy</i>	Aminolevulinic Acid HCl <i>Levulan® Kerastick™ Photodynamic Therapy</i> Draxis Health/DUSA Pharmaceuticals	For the treatment of Actinic Keratosis of the face and scalp.	TPP – Canada
<i>Sunscreens</i>	Mequinol 2%, Tretinoin 0.01% <i>Solagel® Topical Solution</i> Westwood Squibb	For the treatment of solar lentiginos and related hyperpigmented lesions.	TPP – Canada

Update on Drugs

Class	Name/Company	Approval Dates and Comments
<i>Antihistamine</i>	Desloratidine Syrup & Disintegrating Tablets Schering-Plough	The Committee for Proprietary Medicinal Products of the European Agency for the Evaluation of Medicinal Products (EMA) issued a positive opinion recommending approval of these formulations in January 2002 for the treatment of seasonal allergic rhinitis and chronic idiopathic urticaria. The syrup is recommended for patients >2 years of age, and the disintegrating tablets are labeled for patients >12 years of age.
<i>Antibacterial Agent</i>	Moxifloxacin HCl IV <i>Avelox</i> [®] Bayer	The US FDA approved an IV formulation of this antibacterial agent in December 2001, for the treatment of community-acquired pneumonia, uncomplicated skin and skin structure infections, acute bacterial sinusitis, and acute bacterial exacerbations of chronic bronchitis in adults. Avelox is also available in tablet form. The IV and tablet forms are bioequivalent, so no dosing adjustment is required.
<i>Photodynamic Therapy</i>	Photodynamic Therapy <i>Metvix</i> [®] PDT Photocure ASA	New Zealand's regulatory authority gave marketing authorization in February 2002, for the treatment of actinic keratosis and basal-cell carcinoma in patients for whom traditional therapies are unsuitable. This treatment is already approved in 14 European countries and applications are pending in Australia, the US and Switzerland.
<i>Antipsoriatic Agent</i>	Etanercept <i>Enbrel</i> [®] Immunex	The US FDA approved this product in January 2002, for the treatment of psoriatic arthritis.
<i>Depigmenting Agent</i>	Hydroquinone, Tretinoin & Flucinolone Cream <i>Tri-Luma</i> [®] Hill Dermaceuticals	The US FDA approved this cream in January 2002, for the short-term treatment of moderate to severe melasma of the face in the presence of sun-avoidance measures, including sunscreen use.
Drug News		
<i>Drug Interactions</i>	According to an article published in the British Journal of Clinical Pharmacology* St. John's Wort, which is a popular herbal treatment for depression, increases P-glycoprotein expression. As a result, patients taking drugs that act as P-glycoprotein substrates, such as indinavir and cyclosporin, should not take this herbal remedy. *British Journal of Clinical Pharmacology 53:75-82 (2002)	
<i>New Topical Delivery System</i>	CollaGenex Pharmaceuticals has licensed a novel dermal and transdermal drug delivery system named Restoraderm [®] . This technology is designed to enhance the dermal delivery of a variety of active ingredients, and is based on the ability of certain lipid compositions to enhance the natural skin barrier to facilitate dermal and transdermal delivery. This technology is currently still under development.	
<i>HIV/AIDS</i>	Bristol-Myers Squibb Canada announced that Videx ED [®] (didanosine) is now available for sale in Canada as of January 2, 2002. This nucleoside analogue is used to treat adults who are infected with HIV, with a dosage of 1 capsule daily.	

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