

# Skin diseases

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In assigning health priorities, skin diseases are sometimes thought of, in planning terms, as small-time players in the global league of illness compared with diseases that cause significant mortality, such as HIV/AIDS, community-acquired pneumonias, and tuberculosis. However, skin problems are generally among the most common diseases seen in primary care settings in tropical areas, and in some regions where transmissible diseases such as tinea imbricata or onchocerciasis are endemic, they become the dominant presentation. For instance, the World Health Organization's 2001 report (Mathers 2006) on the global burden of disease indicated that skin diseases were associated with mortality rates of 20,000 in Sub-Saharan Africa in 2001. This burden was comparable to mortality rates attributed to meningitis, hepatitis B, obstructed labour, and rheumatic heart disease in the same region. Using a comparative assessment of disability-adjusted life years (DALYs) from the same report, the World Health Organization recorded an estimated total of 896,000 DALYs for the region in the same year, similar to that attributed to gout, endocrine disease, panic disorders, and war-related injuries. As noted later, those figures require confirmation by more detailed studies, and their practical application to health interventions needs to be tested.

Assessing the impact of skin disease on the quality of life in comparison with that of chronic nondermatological diseases is difficult; however, the study by Mallon and others (1999), which was not carried out in a developing country, compares the common skin disease acne with chronic disorders such as asthma, diabetes, and arthritis and finds comparable deficits in objective measurements of life quality. Skin disease related to HIV, which may constitute an important component of the skin disease burden in developing countries, particularly in Sub-Saharan Africa, leads to a similar impact on life quality compared with non-HIV-related skin problems, although the use of antiretroviral therapy significantly improves quality of life. Those findings indicate that skin diseases have a significant impact on quality of life.

## Training pharmacy workers in recognition, management, and prevention of STDs: district-randomized controlled trial:

Author: Patricia Garcia, James Hughes, Cesar Carcamo, King K Holmes

Published on: may 2009

To determine the effectiveness of an intervention for pharmacy workers in improving their recognition and management of sexually transmitted disease (STD) syndromes.

We randomly selected 14 districts (total population nearly 4 million) from the 24 districts of low socioeconomic status in Lima, Peru. We randomly assigned paired districts to receive training and support for management and prevention of STDs or a control intervention about management of diarrhoea. The STD intervention included interactive luncheon seminars on recognition and management of four STD syndromes (urethral discharge, vaginal discharge, genital ulcers, and pelvic inflammatory disease) and STD/HIV prevention counselling; monthly pharmacy visits by "prevention salespersons" who distributed materials that included "STD/HIV prevention packets" containing information, condoms, and cards given to patients for referral of their sex partners; and workshops for physicians on managing patients with STD syndromes referred from pharmacies. Standardized simulated patients visited pharmacies in intervention and control districts at one, three, and six months after training to assess outcomes.

Standardized simulated patients reported significantly better recognition and management (appropriate antimicrobial regimens provided for discharge syndromes and referral to specially trained physicians for genital ulcers or pelvic inflammatory disease) by pharmacy workers of all four STD syndromes. They also reported significantly more frequent recommendations for use of condoms and treatment of partners at pharmacies in intervention districts than in control districts (by "intention-to-train" analyses,  $P < 0.05$  for 47/48 primary outcome comparisons).

## Training was feasible and effectively improved pharmacy workers' practices.

## Burden of skin diseases.

Author: Mohammad KA Basra, Muhammad Shahrukh.

Published on: June 2013

Skin diseases are among the most common health problems worldwide and are associated with a considerable burden. The burden of skin disease is a multidimensional concept that encompasses psychological, social and financial consequences of the skin disease on the patients, their families and on society. Chronic and incurable skin diseases, such as psoriasis and eczema, are associated with significant morbidity in the form of physical discomfort and impairment of patients' quality of life; whereas malignant diseases, such as malignant melanoma, carry substantial mortality. With the availability of a wide range of health status and quality-of-life measures, the effects of most skin diseases on patients' lives can be measured efficiently. The aim of this review is to present some of the published data in order to highlight the magnitude of the burden associated with some common skin diseases and also to suggest ways to quantify this burden of skin diseases. The authors have no relevant

affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

## Microbiome and skin diseases

Author: Patrick LJM Zeeuwen, Michiel Kleerebezem, Harro M Timmerman, Joost Schalkwijk

Published on: Current opinion in allergy and clinical immunology 13 (5), 514-520, 2013

The microbiome of normal human skin was found to have a high diversity and high interpersonal variation. Microbiota compositions of diseased lesional skin (in atopic dermatitis and psoriasis) showed distinct differences compared with healthy skin. The function of microbial colonization in establishing immune system homeostasis has been reported, whereas host–microbe interactions and genetically determined variation of stratum corneum properties might be linked to skin dysbiosis. Both are relevant for cutaneous disorders with aberrant immune responses and/or disturbed skin barrier function. Modulation of skin microbiota composition to restore host–microbiota homeostasis could be future strategies to treat or prevent disease.

## Occupational skin diseases.

Author: Thomas L Diepgen

Published on: September 2001

Occupational skin diseases are the most commonly reported notifiable occupational diseases. In Germany, 23 596 out of a total of 71 263 reported occupational diseases in 2010 were classified as occupational skin diseases (BK No. 5101: “severe or recurrent skin diseases which have forced the person to discontinue all occupational activities that caused or could cause the development, worsening, or recurrence of the disease”). Contact dermatitis (allergic, irritant) of the hands is the most common skin disease and atopic skin diathesis is often an important co-factor. The number of work-related skin diseases is many times higher than the number of notified occupational dermatoses. This CME article explains the legal framework of occupational diseases, the tasks and obligations of the legal statutory work insurance. Typical allergens and irritants of high risk professions are also presented as are the important steps from diagnosis to compensation. Early prevention of occupational skin diseases is very important to avoid severe chronic hand eczema. Therefore the “dermatologist's report” is crucial. Other occupational dermatoses are briefly mentioned. In recent years the number of notifications of occupational skin cancer due to occupational UV-irradiation has increased. According to recent epidemiological findings, there is a significant

and consistent positive association between occupational UV-irradiation and squamous cell carcinoma. Therefore, an important criterion for a new occupational disease is fulfilled.

## Definition of an algorithm for the management of common skin diseases at primary health care level in sub-Saharan Africa

Author: A Mahé, O Faye, H Thiam N'Diaye, F Ly, H Konare, S Keita, AK Traoré, R Hay

Published on: November 1990

In order to help primary health care (PHC) workers in developing countries in the care of common skin diseases, an algorithm for the management of pyoderma, scabies, superficial mycoses, contact dermatitis and referral of early leprosy cases (based on the identification of diseases through the presence of objective key signs, and on treatments by generic drugs) was elaborated. One thousand patients were seen by trained dermatologists, who established diagnoses and treatments; in addition, there was systematic recording of each key sign, according to the successive algorithm steps. We compared the diagnostics and treatments obtained for several combinations of diagnostic signs, with those of the dermatologists. Sensitivity, specificity, positive predictive value and negative predictive value of defined combinations were high for pyoderma, scabies and superficial mycoses. Values were less exact for dermatitis and leprosy, but were considered sufficient for the level of health care targeted. The apportionment of treatments between the algorithm and the dermatological approaches was considered appropriate in more than 80% of cases; mismanagement was possible in 7% of cases, with few predictable harmful consequences. The algorithm was found satisfactory for the management of the dermatological priorities according to the standards required at the PHC level.

## Plants used to treat skin diseases

Author: Nahida Tabassum, Mariya Hamdani

Published on: Pharmacognosy reviews 8 (15), 52, 2014

Skin diseases are numerous and a frequently occurring health problem affecting all ages from the neonates to the elderly and cause harm in number of ways. Maintaining healthy skin is

important for a healthy body. Many people may develop skin diseases that affect the skin, including cancer, herpes and cellulitis. Some wild plants and their parts are frequently used to treat these diseases. The use of plants is as old as the mankind. Natural treatment is cheap and claimed to be safe. It is also suitable raw material for production of new synthetic agents. A review of some plants for the treatment of skin diseases is provided that summarizes the recent technical advancements that have taken place in this area during the past 17 years.

## New Algorithm for Managing Childhood Illness Using Mobile Technology (ALMANACH): A Controlled Non-Inferiority Study on Clinical Outcome and Antibiotic Use in Tanzania

Author: Amani Flexson Shao, Clotilde Rambaud-Althaus, Josephine Samaka, Allen Festo Faustine, Seneca Perri-Moore, Ndeniria Swai, Judith Kahama-Maró, Marc Mitchell, Blaise Genton, Valérie D'Acremont

Published on: march 1996

The decline of malaria and scale-up of rapid diagnostic tests calls for a revision of IMCI. A new algorithm (ALMANACH) running on mobile technology was developed based on the latest evidence. The objective was to ensure that ALMANACH was safe, while keeping a low rate of antibiotic prescription.

Consecutive children aged 2–59 months with acute illness were managed using ALMANACH (2 intervention facilities), or standard practice (2 control facilities) in Tanzania. Primary outcomes were proportion of children cured at day 7 and who received antibiotics on day 0.

130/842 (15.4%) in ALMANACH and 241/623 (38.7%) in control arm were diagnosed with an infection in need for antibiotic, while 3.8% and 9.6% had malaria. 815/838 (97.3%;96.1–98.4%) were cured at D7 using ALMANACH versus 573/623 (92.0%;89.8–94.1%) using standard practice ( $p<0.001$ ). Of 23 children not cured at D7 using ALMANACH, 44% had skin problems, 30% pneumonia, 26% upper respiratory infection and 13% likely viral infection at D0. Secondary hospitalization occurred for one child using ALMANACH and one who eventually died using standard practice. At D0, antibiotics were prescribed to 15.4%

(12.9–17.9%) using ALMANACH versus 84.3% (81.4–87.1%) using standard practice ( $p<0.001$ ). 2.3% (1.3–3.3) versus 3.2% (1.8–4.6%) received an antibiotic secondarily.

Management of children using ALMANACH improve clinical outcome and reduce antibiotic prescription by 80%. This was achieved through more accurate diagnoses and hence better identification of children in need of antibiotic treatment or not. The building on mobile technology allows easy access and rapid update of the decision chart.

## Pruritic skin diseases in the elderly

Author: Yupin Thaipisuttikul

Published on: The Journal of dermatology 25 (3), 153-157, 1998

A total of 149 elderly men and women with pruritic skin problems were selected for study at the dermatological clinic in the Department of Medicine, Rajavithi General Hospital, Bangkok, Thailand, from 26 November 1996 to 10 January 1997. There were 62 men (41.6%) and 87 women (58.4%). The average age was seventy years. Among these elderly patients, pruritic skin disease was the most common problem, found in about 41%. Xerosis (senile pruritus) was the most common problem at 38.9%. Other pruritic skin diseases found were inflammatory eczema (22.8%), lichen simplex chronicus (12.1%), skin infections (11.4%), psoriasis vulgaris (6.7%), urticaria (4.7%), drug rash (2%), insect bite (0.7%), and anogenital pruritus (0.7%). Xerosis usually occurred with increased bathing frequency and use of strong soaps and detergents. The causes of inflammatory eczema were seborrheic dermatitis, allergic contact dermatitis, dyshidrosis, and stasis dermatitis. Statistical analysis of xerosis and inflammatory eczema by gender showed no difference, but there was more inflammatory eczema among females.

## Role of vitamin C in skin diseases

Author: Kaiqin Wang, Hui Jiang, Wenshuang Li, Mingyue Qiang, Tianxiang Dong, Hongbin Li

Published on: Frontiers in physiology, 819, 2018

Vitamin C (ascorbic acid) plays an important role in maintaining skin health and can promote the differentiation of keratinocytes and decrease melanin synthesis, leading to antioxidant protection against UV-induced photodamage. Normal skin needs high concentrations of vitamin C, which plays many roles in the skin, including the formation of the skin barrier and collagen in the dermis, the ability to counteract skin oxidation, and the modulation of cell

signal pathways of cell growth and differentiation. However, vitamin C deficiency can cause or aggravate the occurrence and development of some skin diseases, such as atopic dermatitis (AD) and porphyria cutanea tarda (PCT). Levels of vitamin C in plasma are decreased in AD, and vitamin C deficiency may be one of the factors that contributes to the pathogenesis of PCT. On the other hand, high doses of vitamin C have significantly reduced cancer cell viability, as well as invasiveness, and induced apoptosis in human malignant melanoma. In this review, we will summarize the effects of vitamin C on four skin diseases (porphyria cutanea tarda, atopic dermatitis, malignant melanoma, and herpes zoster and postherpetic neuralgia) and highlight the potential of vitamin C as a therapeutic strategy to treat these diseases, emphasizing the clinical application of vitamin C as an adjuvant for drugs or physical therapy in other skin diseases.

## The proportion of medical consultations motivated by skin diseases in the health centers of Bamako

Author: Antoine Maheé, Hawa Thiam N'Diaye, Pierre Bobindec

Published on: Dec 2003

Skin diseases have recently been identified as a public health problem in developing countries. However, most studies on skin diseases in developing countries have been conducted in specialized dermatologic centers. Data on the proportion of consultations motivated by skin diseases in nonspecialized health centers in developing countries are scarce. In order to appreciate the request for dermatologic care of the population of a developing African country, we attempted to measure this proportion in health centers of Bamako, the capital of Mali.

Eight out-patient health centers were randomly selected in Bamako, and the medical registers for the first 6 months of 1993 were consulted.

Out of a total of 14,058 consultations given, 1639 (11.7%) were motivated by skin diseases. The main diagnoses registered were pyoderma (42.2% of all the dermatologic diagnoses), eczema (15.5%), scabies (8.5%), and fungal infections (7.9%).

The high proportion of ambulatory consultations in health centers in Bamako motivated by skin diseases suggests that they are an important health problem for the population of this city. Public health policies should be Implemented in order to manage this problem.

# Lumpy skin disease: a direct threat to Europe

Author: Pip M Beard

Published on: The Veterinary Record 178 (22), 557, 2016

In particular the role of vector transmission and the vectors involved is unclear.[...] the effectiveness of quarantine zones and vector control as part of an eradication campaign cannot be judged.[black square] The lack of a simple, rapid and sensitive serological test for LSDV infection means it is very challenging to detect historically or subclinically infected animals.[...] surveillance studies for LSD are imprecise and it is difficult to track LSD outbreaks or prove disease-free status in a particular region or country.[black square] The lack of a suitable vaccine is another key problem; the only currently available LSD vaccines are live-attenuated virus strains, which are banned from use in the EU unless specific legislative guidelines are met.

# Onchocerciasis: the clinical and epidemiological burden of skin disease in Africa

Author: ME Murdoch, MC Asuzu, M Hagan, WH Makunde, P Ngoumou, KF Ogbuagu, D Okello, G Ozoh, J Remme

Published on: Annals of Tropical Medicine & Parasitology 96 (3), 283-296, 2002

An attempt was made to assess the true public-health importance of onchocercal skin disease throughout the African region and hence provide an objective basis for the rational planning of onchocerciasis control in the area. The seven collaborative centres that participated in the study (three in Nigeria and one each in Ghana, Cameroon, Tanzania and Uganda) were all in areas of rainforest or savannah-forest mosaic where onchocercal blindness is not common. A cross-sectional dermatological survey was undertaken at each site following a standard protocol. At each site, the aim was to examine at least 750 individuals aged 5 years and living in highly endemic communities and 220-250 individuals aged 5 years and living in a hypo-endemic (control) community. Overall, there were 5459 and 1451 subjects from hyper-and hypo-endemic communities, respectively.

In the highly endemic communities, the prevalence of itching increased with age until 20 years and then plateaued, affecting 42% of the population aged 20 years. There was a strong correlation between the prevalence of itching and the level of endemicity (as measured by the prevalence of nodules;  $r=0.75$ ;  $P<0.001$ ). The results of a multivariate logistic regression analysis showed that, at the individual level, the presence of onchocercal reactive skin lesions (acute papular onchodermatitis, chronic papular onchodermatitis and/or lichenified onchodermatitis) was the most important risk factor for pruritus, with an odds ratio (OR) of 18.3 and 95% confidence interval (CI) of 15.19-22.04, followed by the presence of palpable onchocercal nodules (OR=4.63; CI=4.05-5.29). In contrast, non-onchocercal skin disease contributed very little to pruritus in the study communities (OR=1.29; CI=1.1-1.51).



Onchocercal skin lesions affected 28% of the population in the endemic villages. The commonest type was chronic papular onchodermatitis (13%), followed by depigmentation (10%) and acute papular onchodermatitis (7%). The highest correlation with endemicity was seen for the prevalence of any onchocercal skin lesion and/or pruritus combined ( $r=0.8$ ;  $P<0.001$ ).

Cutaneous onchocerciasis was found to be a common problem in many endemic areas in Africa which do not have high levels of onchocercal blindness. These findings, together with recent observations that onchocercal skin disease can have major, adverse, psycho-social and socio-economic effects, justify the inclusion of regions with onchocercal skin disease in control programmes based on ivermectin distribution. On the basis of these findings, the World Health Organization launched a control programme for onchocerciasis, the African Programme for Onchocerciasis Control (APOC), that covers 17 endemic countries in Africa.

## The importance of occupational skin diseases in the United States

Author: Boris D Lushniak

Published on: International archives of occupational and environmental health 76 (5), 325-330, 2003

Occupational skin diseases and disorders (OSDs) are the most commonly reported non-trauma-related (acute or cumulative) category of occupational illnesses in the United States. This factor, along with their potential chronicity, their effect on an individual's vocational and avocational activities, and the fact that they are preventable, point out the public health importance of OSDs. It can be difficult to obtain accurate epidemiological data for OSDs in the US, and all sources have their limitations. OSD cases that result in days away from work are important categories to study, since days away from work may be used as an indicator of the severity of a case. Descriptive epidemiology may be used to provide further information on these "more severe" cases, to determine, for example, high-risk industries, occupations, and exposures, and then to use this information to target the high-risk, "more severe" cases for prevention strategies. The goal of the US Public Health Service for the year 2010, as established in its "Healthy People 2010: National Health Promotion and Disease Prevention Objectives", is to reduce national OSDs to an incidence of no more than 46 per 100,000 full-time workers. Both irritant and allergic contact dermatitis are considered to be priority research areas as outlined in the National Occupational Research Agenda introduced in 1996 by the National Institute for Occupational Safety and Health. Increased knowledge and awareness of occupational skin diseases will assist in the achievement of the national public health goals.

# Eosinophilic skin diseases: a comprehensive review

Author: Hai Long, Guiying Zhang, Ling Wang, Qianjin Lu

Published on: Clinical reviews in allergy & immunology 50 (2), 189-213, 2016

Eosinophilic skin diseases, commonly termed as eosinophilic dermatoses, refer to a broad spectrum of skin diseases characterized by eosinophil infiltration and/or degranulation in skin lesions, with or without blood eosinophilia. The majority of eosinophilic dermatoses lie in the allergy-related group, including allergic drug eruption, urticaria, allergic contact dermatitis, atopic dermatitis, and eczema. Parasitic infestations, arthropod bites, and autoimmune blistering skin diseases such as bullous pemphigoid, are also common. Besides these, there are several rare types of eosinophilic dermatoses with unknown origin, in which eosinophil infiltration is a central component and affects specific tissue layers or adnexal structures of the skin, such as the dermis, subcutaneous fat, fascia, follicles, and cutaneous vessels. Some typical examples are eosinophilic cellulitis, granuloma faciale, eosinophilic pustular folliculitis, recurrent cutaneous eosinophilic vasculitis, and eosinophilic fasciitis. Although tissue eosinophilia is a common feature shared by these disorders, their clinical and pathological properties differ dramatically. Among these rare entities, eosinophilic pustular folliculitis may be associated with human immunodeficiency virus (HIV) infection or malignancies, and some other diseases, like eosinophilic fasciitis and eosinophilic cellulitis, may be associated with an underlying hematological disorder, while others are considered idiopathic. However, for most of these rare eosinophilic dermatoses, the causes and the pathogenic mechanisms remain largely unknown, and systemic, high-quality clinical investigations are needed for advances in better strategies for clinical diagnosis and treatment. Here, we present a comprehensive review on the etiology, pathogenesis, clinical features, and management of these rare entities, with an emphasis on recent advances and current consensus.

# Vitamin D and the pathophysiology of inflammatory skin diseases

Author: Meenakshi Umar, Konduru S Sastry, Fatima Al Ali, Moza Al-Khulaifi, Ena Wang, Aouatef I Chouchane

Published on: Skin pharmacology and physiology 31 (2), 74-86, 2018

Vitamin D is a secosteroid, which was initially known for its skeletal role; however, in recent years, its functions in different organs have been increasingly recognized. In this review, we will provide an overview of vitamin D functions in the skin physiology with specific focus on its role in certain inflammatory skin conditions such as psoriasis and atopic dermatitis.

A comprehensive literature search was carried out in PubMed and Google Scholar databases using keywords like “vitamin D,” “skin,” “atopic dermatitis,” and “psoriasis.” Only articles published in English and related to the study topic were included in this review.

Vitamin D is integrally connected to the skin for its synthesis, metabolism, and activity. It regulates many physiological processes in the skin ranging from cellular proliferation, differentiation, and apoptosis to barrier maintenance and immune functions. Vitamin D deficiency is associated with the risk of psoriasis and atopic dermatitis, and several clinical/observational studies have suggested the beneficial effect of vitamin D in the therapy of these 2 inflammatory skin disorders.

Vitamin D exerts a pleiotropic effect in the skin and could be an important therapeutic option for psoriasis and atopic dermatitis.

## Gender aspects in skin diseases

Author: W Chen, M Mempel, C Traidl-Hofmann, S Al Khusaei, J Ring

Published on: Journal of the European Academy of Dermatology and Venereology 24 (12), 1378-1385, 2010

Gender differences in medicine have been recognized in anatomy, physiology, as well as in epidemiology and manifestations of various diseases. With respect to skin disorders, males are generally more commonly afflicted with infectious diseases while women are more susceptible to psychosomatic problems, pigmentary disorders, certain hair diseases, and particularly autoimmune as well as allergic diseases. Significantly, more female sex-associated dermatoses can be identified than the male sex-associated dermatoses. Dermatoses in the genital area differ between men and women. Gender differences also exist in the occurrence and prognosis of certain skin malignancies. The mechanisms underlying gender differences in skin diseases remain largely unknown. Differences in the skin structure and physiology, effect of sex hormones, ethnic background, sociocultural behaviour and environmental factors may interact to exert the influences. A better understanding of gender differences in human health and diseases will allow the development of novel concepts for prevention, diagnosis and therapy of skin diseases.

## Antioxidant activity, lipid peroxidation and skin diseases. What's new

Author: S Briganti, M Picardo

Published on: Journal of the European Academy of Dermatology and Venereology 17 (6), 663-669, 2003

Due to its interface function between the body and the environment, the skin is chronically exposed to both endogenous and environmental pro-oxidant agents, leading to the harmful generation of reactive oxygen species (ROS). There is compelling evidence that oxidative stress is involved in the damage of cellular constituents, such as DNA, cell membrane lipids or proteins. To protect the skin against the over-load of oxidant species, it contains a well-

organised system of both chemical and enzymatic antioxidant which are able to work in a synergistic manner. Skin antioxidant network protects cells against oxidative injury and prevent the production of oxidation products, such as 4-hydroxy-2-nonenal or malonaldehyde, which are able to induce protein damage, apoptosis or release of pro-inflammatory mediators, such as cytokines. When oxidative stress overwhelms the skin antioxidant capacity the subsequent modification of cellular redox apparatus leads to an alteration of cell homeostasis and a generation of degenerative processes. Topical application or oral administration of antioxidants has been recently suggested as preventive therapy for skin photoaging and UV-induced cancer. The recognition that ROS can act as second messengers in the induction of several biological responses, such as the activation of NF- $\kappa$ B or AP-1, the generation of cytokines, the modulation of signalling pathways, etc., has led many researchers to focus on the possible effects of antioxidants in many pathological processes. The recent demonstration that the peroxisome proliferators-activated receptors, whose natural ligands are polyunsaturated fatty acids and their oxidation products, have a central role in the induction of some skin diseases, such as psoriasis or acne, has indicated new links between free radicals and skin inflammation. Based on these findings, the review summarises the possible correlations between antioxidant imbalance, lipid oxidative breakage and skin diseases, from both a pathological and therapeutic points of view.

## Psychosocial effect of common skin diseases.

Author: Benjamin Barankin, Joel DeKoven

Published on: Canadian Family Physician 48 (4), 712-716, 2002

To increase awareness of the psychosocial effect of acne, atopic dermatitis, and psoriasis. A literature review was based on a MEDLINE search (1966 to 2000). Selected articles from the dermatologic and psychiatric literature, as well as other relevant medical journals, were reviewed and used as the basis for discussion of how skin disease affects patients' lives and of appropriate management. Studies in the medical literature provide mainly level III evidence predominantly based on descriptive studies and expert opinion.

Dermatologic problems can result in psychosocial effects that seriously affect patients' lives. More than a cosmetic nuisance, skin disease can produce anxiety, depression, and other psychological problems that affect patients' lives in ways comparable to arthritis or other disabling illnesses. An appreciation for the effects of sex, age, and location of lesions is important, as well as the bidirectional relationship between skin disease and psychological

distress. This review focuses on the effects of three common skin diseases seen by family physicians: acne, atopic dermatitis, and psoriasis.

How skin disease affects psychosocial well-being is underappreciated. Increased understanding of the psychiatric comorbidity associated with skin disease and a biopsychosocial approach to management will ultimately improve patients' lives.

## Autoimmune and infectious skin diseases that target desmogleins

Author: Masayuki Amagai

Published on: Proceedings of the Japan Academy, Series B 86 (5), 524-537, 2010

Desmosomes are intercellular adhesive junctions of epithelial cells that contain two major transmembrane components, the desmogleins (Dsg) and desmocollins (Dsc), which are cadherin-type cell–cell adhesion molecules and are anchored to intermediate filaments of keratin through interactions with plakoglobin and desmoplakin. Desmosomes play an important role in maintaining the proper structure and barrier function of the epidermis and mucous epithelia. Four Dsg isoforms have been identified to date, Dsg1–Dsg4, and are involved in several skin and heart diseases. Dsg1 and Dsg3 are the two major Dsg isoforms in the skin and mucous membranes, and are targeted by IgG autoantibodies in pemphigus, an autoimmune disease of the skin and mucous membranes. Dsg1 is also targeted by exfoliative toxin (ET) released by *Staphylococcus aureus* in the infectious skin diseases bullous impetigo and staphylococcal scalded skin syndrome (SSSS). ET is a unique serine protease that shows lock and key specificity to Dsg1. Dsg2 is expressed in all tissues possessing desmosomes, including simple epithelia and myocardia, and mutations in this gene are responsible for arrhythmogenic right ventricular cardiomyopathy/dysplasia. Dsg4 plays an important adhesive role mainly in hair follicles, and Dsg4 mutations cause abnormal hair development. Recently, an active disease model for pemphigus was generated by a unique approach using autoantigen-deficient mice that do not acquire tolerance against the defective autoantigen. Adoptive transfer of Dsg3<sup>−/−</sup> lymphocytes into mice expressing Dsg3 induces stable anti-Dsg3 IgG production with development of the pemphigus phenotype. This mouse model is a valuable tool with which to investigate immunological mechanisms of harmful IgG autoantibody production in pemphigus. Further investigation of desmoglein molecules will continue to provide insight into the unsolved pathophysiological mechanisms of diseases and aid in the development of novel therapeutic strategies with minimal side effects.

