

Dermatological diseases management in family medicine

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Abstract:

Effective treatment of infectious skin disease requires timely identification or estimation of the offending pathogen, and selection of a treatment that is effective against the pathogen and is administered via the optimal route and dosing schedule. In this study we aimed to explore management methods of infectious skin disease and background information. We searched PubMed, and Health Technology Assessment (HTA) databases for recent for studies concerning dermatological diseases management in family medicine published up to October, 2017. Medical Mesh terms were used in our search as following; “dermatological disease” “skin rash” “skin disease” “primary care” “family medicine”. Infectious skin diseases stand for a primary group of dermatologic illnesses that account for considerable health and financial burden annually. Primary care doctors should have the working knowledge to manage the most usual skin diseases in order to facilitate the management of typical dermatological problems and to identify those situations that require further referral. Despite the fact that skin disease is usually associated with cheaper diagnostic and therapeutic treatments and limited death, skin disorders are a leading reason for disability in the community. The high visibility of skin diseases raises the

possibility of stigmatization. Skin diseases should be determined not just by symptoms, but likewise by physical, mental, and social criteria.

Introduction:

Skin disease is an usual clinical problem, belonging to the most regular reasons for consulting a GP [1], standing for 8.4% of primary care situations [3]. Given that 65.1% of all patients with dermatological problems only consult their General Practitioner, GPs, as 'gatekeepers', consequently should triage their patients and make a decision about referral. To do this, they have to be able to identify and treat one of the most usual skin conditions such as eczema, infectious skin diseases or benign tumours [2]. Additionally, chronic skin diseases, such as psoriasis, could impact individuals throughout their adult lives [4] and frequently cause a significant decrease in quality of life, a reduced self-esteem and the feeling of being stigmatised. Dermatological illness for that reason represent a continuous difficulty to GPs and their basic absence of knowledge and training in this area [5]. Dermatology often appears among GPs' priorities for ongoing medical education [6].

Dealing with uncertainty is a characteristic aspect of medical care work [7] and it can be presumed there is an also higher level of diagnostic unpredictability when encountering patients with skin disease. While several methods have been explained for the basic diagnostic workup in primary care [8], to our understanding there are no particular data on the diagnostic process amongst patients presenting with dermatological issues.

Effective treatment of infectious skin disease requires timely identification or estimation of the offending pathogen, and selection of a treatment that is effective against the pathogen and is administered via the optimal route and dosing schedule. In this study we aimed to explore management methods of infectious skin disease and background information.

Methodology:

We searched PubMed, and Health Technology Assessment (HTA) databases for recent for studies concerning dermatological diseases management in family medicine published up to October, 2017. Medical Mesh terms were used in our search as following; “dermatological disease” “skin rash” “skin disease” “primary care” “family medicine”. We applied restriction to our search for only English language articles with human subjects.

Discussion:

• **BACTERIAL SKIN DISEASES**

Microbial skin and soft-tissue infections (SSTIs) are one of the most typical type of infectious skin disease, and include a variety of conditions that could be classified by the skin layers and constructs they affect [9]. Impetigo is a superficial, crusting epidermal skin infection that offers in bullous and nonbullous types. Erysipelas is a streptococcal infection of the superficial dermal lymphatics that shows dramatically demarcated, elevated borders [10]. Cellulitis is an infection of

the deeper dermis and subcutaneous tissue with inadequately demarcated boundaries; the vast majority of cases are streptococcal in origin. Medically the difference between erysipelas and cellulitis is refined and, given that both are primarily streptococcal in origin, numerous specialists consider them to be various presentations of the same illness [11]. Because of this, these infection types are often organized in clinical coverage and epidemiologic analyses. Cutaneous abscesses are collections of pus in the dermis and subcutaneous tissue. Folliculitis describes superficial infection of hair follicles with pus accumulation in the epidermis. Furuncles, or "boils," stand for deeper involvement of hair follicles in which the infection extends right into the subcutaneous tissue. Carbuncles happen when adjacent furuncles coalesce to form a single inflamed location. Pus-forming infections tend to be staphylococcal in origin, besides periorificial abscesses, which are frequently anaerobic. Although all the preceding prevail, cellulitis represent the majority of serious bacterial SSTIs [12].

Acne

Acne is a typical inflammatory skin problem frequently not appreciated by medical staff and laypeople as being anything more than a superficial nuisance. The occurrence of acne in schoolchildren arrays from 30% to 100% depending upon age, with 93.3% of 16- to 18-yearolds experiencing acne [13]. Acne represent 3% of dermatologic primary care visits and 0.6% of all visits to family doctor [14].

Skin disease, such as acne, are occasionally taken as insignificant in contrast with diseases of various other body organ systems. Acne's effect on psychosocial and emotional problems, however, approaches that of arthritis, back pain, diabetes, epilepsy, and disabling asthma [15]. The psychosocial impact of acne was initially identified in 1948, when Sulzberger and Zaidens wrote, "There is no single illness which triggers more psychic trauma and more

maladjustment in between parents and children, more general insecurity and feelings of inferiority, and higher amounts of psychic assessment than does acne vulgaris." [16]. Acne has a demonstrable organization with depression and anxiety; it affects individuality, emotions, self-image and esteem, feelings of social isolation, and the capacity to develop relationships. Its considerable impact is likely pertaining to its regular appearance on the face, and would assist clarify the increased unemployment rate of grownups with acne [17].

Acne is a follicular illness containing a comedonal and inflammatory stage. Defective keratinization generates a hyperkeratotic plug that obstructs the opening of the pilosebaceous unit, developing a comedo. Seborrhea (increased sebum manufacturing) expands the follicle and brings about subsequent microbial overgrowth. *Propionibacterium acnes*, a colonizer of the follicle, proliferates, resulting in leukocyte intrusion and tear of the follicle. The follicular components and bacterial metabolites produce an inflammatory response, developing papules and pustules. Androgens, mostly dehydroepiandrosterone sulfate (DHEAS), boost sweat gland enhancement and secretion, which exacerbate the cycle [18]. Postinflammatory hyperpigmentation and scarring are common residua.

Treatment

The American Academy of Dermatology's 2007 standards of care for managing acne vulgaris describe a multitiered technique to treatment tailored to the individual patient based upon lesion type and severity [19]. Table 1 gives recommended therapy standards.

Table 1: Acne Treatment

Mild
Topical retinoid nightly as tolerated and/or benzoyl peroxide daily
Moderate to Severe

Topical retinoid plus benzoyl peroxide plus topical or oral antibiotic
Severe
Dermatology evaluation, isotretinoin
Acne conglobata or fulminans: systemic steroids plus isotretinoin

Topical retinoids are a mainstay of treatment, reducing follicular blockage in comedonal and inflammatory acne. Several formulations are available as lotions and gels: tazarotene (Tazorac), tretinoin (Retin-A, Avita, Retin-A Micro), and retinoid-like adapalene (Differin). Nightly application of a thin film of medication is preferred yet can lead to dryness and irritation. Implementing the drug three or four times weekly and enhancing to nightly as tolerated enhances conformity. If irritation happens, use should be reduced.

Benzoyl peroxide is an important acne therapy with its antiseptic, anti-inflammatory, and comedolytic properties. It is generally well tolerated and may be one of the most economical acne treatment. Benzoyl peroxide is offered in varying concentrations from 2.5% to 10% and as washes, gels, and cleansing pads. Its use aids to reduce antimicrobial resistance [20].

Topical anti-biotics, such as clindamycin 1% or erythromycin 2%, are helpful in inflammatory disease. Nonetheless, provided the increasing rates of microbial resistance they need to not be utilized as monotherapy. Integrated use with a benzoyl peroxide prevents bacterial resistance, and a benzoyl peroxide or topical retinoid makes them more reliable.³ Other topical agents, such as azelaic acid and products containing salicylic acid, sulfur, or sodium sulfacetamide, have minimal efficacy.

Most patients benefit from mix treatment using two or three agents. For mild to moderate acne, benzoyl peroxide and a topical retinoid with or without a topical antibiotic are usually utilized. To help with treatment and patient compliance, combined solutions are offered, such as benzoyl

peroxide and clindamycin (Duac, BenzaClin) tretinoin and clindamycin (Ziana) & benzoyl peroxide & adapelene (Epiduo).

For extra serious or comprehensive inflammatory acne, a systemic antibiotic is commonly warranted along with a benzoyl peroxide and/or topical retinoid. Doxycycline 100 to 200 mg/day, minocycline 100 to 200 mg/day, or tetracycline 500 mg to 1 g/day are effective choices [19]. Negative effects are fairly uncommon, although gastrointestinal distress and genital candidiasis are feasible. Doxycycline is a photosensitizer, and minocycline could cause pigmentation, dizziness, and a systemic lupus erythematosus (SLE)-like disorder. These antibiotics should be avoided in children younger than 9 years, since dental or skeletal irregularities can develop. Typically recommended for rosacea, submicrobial doxycycline (Oracea) 40 mg daily has anti-inflammatory properties and reduces the potential for microbial resistance. Sustained-release weight based minocycline (Solodyn) has exhibited great effectiveness with minimal put Solodyn before oracea negative effects. Alternatives to tetracycline consist of trimethoprim-sulfamethoxazole and erythromycin. Maximum improvement need to not be anticipated for at least 3 months, despite the antibiotic selected.

For some females, hormone therapy with low-progestin oral contraceptive pills or antiandrogenic representatives could enhance therapy. FDA-approved oral contraceptives for acne include those consisting of norgestimate with ethinyl estradiol (Ortho Tri-Cyclen) and norethindrone acetate with ethinyl estradiol (Estrostep) [19]. Drospirenone with ethinyl estradiol (Yasmin, YAZ) has also been utilized efficiently (Author's first choice). Spironolactone (Aldactone), an antihypertensive with antiandrogenic properties, has worked in some women by reducing DHEAS [21].

- **FUNGAL SKIN DISEASES**

Cutaneous fungal infections may be separated into 3 groups: superficial, deep, and systemic infections. Superficial infections are confined to dead keratinous tissue, the epidermis, and hair follicles, and are triggered by dermatophytes, nondermatophyte molds, and yeasts (*Candida* and *Malassezia* species [22]). Deep infections show participation of all skin layers and typically expand right into the subcutaneous tissue. These infections occur using direct shot of the skin, and consist of infections such as sporotrichosis, mycetoma, and chromomycosis. Systemic infections with cutaneous symptoms are the least usual and typically occur in immunocompromised hosts. These infections are generally acquired with inhalation of spores with a primary pulmonary focus, even when skin sores are the here and now finding. Histoplasmosis, blastomycosis, and coccidioidomycosis may occur in patients with typical immune function, whereas various other infections such as cryptococcosis, aspergillosis, fusariosis, and mucormycosis present mainly in immunocompromised hosts [22].

Superficial Fungal Infections General

Most of fungal infections are superficial cutaneous infections, most of which arise from dermatophyte infection [23]. Dermatophytes are fungi that digest keratin as a nutrient source. These fungi colonize the highly keratinized stratum corneum, or outermost layer of the skin, in addition to various other keratinized structures such as the nail plate and hair follicles [23]. Such fungus hardly ever attack viable tissue, and hence do not generate deep cutaneous or systemic infections, neither are they dangerous [24]. Although many infections show gross modifications to the bordering and underlying tissue suggestive of deeper infection, this usually stands for an inflammatory host response to the overlying dermatophyte infection without real intrusion [24].

Dermatophytes are divided right into 3 category: Trichophyton, Microsporum, and Epidermophyton. Greater than 40 different varieties of dermatophyte have been implicated in

skin disease; nonetheless, the majority of infections are triggered by just a few species [23]. *Trichophyton rubrum* is one of the most typical dermatophyte, and it is estimated that 70% of the United States populace will experience at least one *T. rubrum* infection in their lifetime. Various other usual species in the United States include *Trichophyton tonsurans* and *Trichophyton mentagrophytes*. The distribution of dermatophytes is not static yet rather everchanging, especially in the era of worldwide migration, travel, and commerce [23]. Variables such as socioeconomic condition, use of occlusive footwear, and urbanization additionally affect the differing circulation of virus types [25].

Treatment

The treatment of superficial fungal infections differs based on the kind of infection and the presumed microorganism. For some infection types, consisting of tinea corporis, tinea faciei, tinea pedis, tinea cruris, tinea versicolor, and candidiasis, treatment with topical representatives could be adequate [24]. However, numerous superficial fungal infections respond poorly to topical representatives alone. As an example, less compared to 20% of instances of tinea unguium react to topical therapy, owing to inadequate penetration of the nail bed [26]. For infections such as tinea unguium, tinea capitis, and other refractory or extreme cutaneous fungal infections, use systemic antifungal agents is the requirement of care. Griseofulvin, terbinafine, and azoles such as fluconazole, itraconazole, and ketoconazole are one of the most extensively utilized systemic antifungal treatments for cutaneous fungal infections. Use a few of these agents can be made complex by medication toxicities for which monitoring of hepatic and kidney function is necessary. In recent years, numerous new drugs with more favorable side-effect accounts have been created [24].

- **VIRAL SKIN DISEASES**

Viral conditions of the skin stand for a last major group of contagious skin disease. While many viral infections are eliminated after preliminary infection, a few of one of the most common viruses affecting the skin produce chronic or perhaps life-long infection. Human papillomavirus, as an example, which triggers common and genital moles, could generate chronic infection that is extremely stubborn to therapy. Herpesviruses, which create many usual cutaneous illness including oral and herpes, develop irreversible infection that fluctuates in between latent infection and energetic condition over the life time of the host. The determination of many viral skin diseases for that reason adds to the high frequency and economic burden of these infections.

Herpes Simplex Virus Infection General

The viral family Herpesviridae encompasses some of the most widespread human viruses, including herpes simplex viruses 1 and 2 (HSV-1, HSV-2), varicella zoster infection (VZV), Epstein-Barr virus (EBV), and cytomegalovirus (CMV) [27]. Herpesviruses are unique in their ability to generate hidden, incurable infection. The herpes simplex infections, HSV-1 and HSV-2, establish preliminary infection with mucosa or abraded skin [28]. After initial, or "primary," infection, these infections take a trip backward from of the point of exposure along sensory neuronal axons to nuclei where they multiply and stay hidden [28]. After a variable amount of time viral reactivation can occur, producing recurrence at the website of the primary infection. Condition reoccurrence may be precipitated by numerous elements, consisting of emotional anxiety, high temperature, local injury, ultraviolet light, menstrual cycle, or immunosuppression [28]. Frequently, nevertheless, no clear cause is identified. Furthermore, viral resurgence may bring about losing of viral fragments without symptomatic illness. At any given time, around 1% to 5% of individuals with HSV infection show asymptomatic losing, which contributes to the spread of condition [29]. **Treatment**

There is no remedy for HSV infection, so treatment is concentrated on undermining signs, decreasing the regularity of recurrences, and reducing viral shedding [30]. Antivirals have undertaken exceptional development over the past 3 decades. Nucleoside reverse transcriptase inhibitors, such as acyclovir, valacyclovir, and famciclovir, are first-line agents in the therapy of primary oral or genital HSV infection [31]. For herpes labialis, long-lasting prophylactic oral acyclovir might minimize the frequency of condition reoccurrence [29]. If preventative acyclovir is not utilized, oral acyclovir may also be launched at the time of condition recurrence, and has been demonstrated to lower discomfort and recovery time. The advantages of oral acyclovir are enhanced if therapy is started early in the prodromal phase [34]. Various other oral therapy choices for recurrent herpes labialis consist of famciclovir and valacyclovir [32]. Numerous topical agents such as penciclovir are readily available; however, their results are modest at ideal. The treatment of herpes genitalis is similar to that of herpes labialis. Preventative oral acyclovir reduces viral shedding and disease outbreaks [33]. Oral acyclovir, famciclovir, and valacyclovir might also be used in the treatment of genital recurrences.

Conclusion:

Infectious skin diseases stand for a primary group of dermatologic illnesses that account for considerable health and financial burden annually. Primary care doctors should have the working knowledge to manage the most usual skin diseases in order to facilitate the management of typical dermatological problems and to identify those situations that require further referral. Despite the fact that skin disease is usually associated with cheaper diagnostic and therapeutic treatments and limited death, skin disorders are a leading reason for disability in the community. The high visibility of skin diseases raises the possibility of stigmatization. Skin

diseases should be determined not just by symptoms, but likewise by physical, mental, and social criteria. The effect of skin diseases on patients' lives is now recognized to be comparable to many "more severe" clinical disorders. Knowledge of mind-body interactions and interventions could help to enhance patients' skin problem and eventually their quality of life. Counseling and psychotropic medicines could benefit patients with depression or stress related to their skin troubles, and consultation with a dermatologist and, in some cases, a psychiatrist can be advantageous. Physicians concerned with patients' mental wellness need to likewise take into consideration referral to effectively trained professionals in cosmetic camouflage to diminish or disguise face or various other disfigurements.

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