



A PHARMACY CONTINUING EDUCATION PROGRAM

W-F Professional Associates, Inc. 400 Lake Cook Rd., Suite 207 Deerfield, IL 60015 847-945-8050

May 2010 "Geriatric Skin Disorders" 707-000-10-005-H01-P



*This Month:
"Geriatric
Skin Disorders"*

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Toward the intent of providing valuable information regarding the aging process, in this lesson the review of skin disorders that are often experienced by our aging population is discussed. As always, the goal is to provide useful information that can be shared with patients. This lesson provides 1.25 hours (0.125 CEUs) of credit, and is intended for pharmacists in all practice settings. **The program ID # for this lesson is 707-000-10-005-H01-P. Pharmacists completing this lesson by May 31, 2013 may receive full credit.**

To obtain continuing education credit for this lesson, you must answer the questions on the quiz (70% correct required), and return the quiz. Should you score less than 70%, you will be asked to repeat the quiz. Computerized records are maintained for each participant.

If you have any comments, suggestions or questions, contact us at the above address, or call toll free 1-800-323-4305. (In Alaska and Hawaii phone 1-847-945-8050). **Please write your ID Number (the number that is on the top of the mailing label) in the indicated space on the quiz page** (for continuous participants only).

The objectives of this lesson are such that upon completion the participant will be able to:

1. List layers of the skin & state their function.
2. Describe anatomy & physiology of the skin.
3. Discuss idiosyncrasies associated with skin of the elderly.
4. Compare skin of the elderly to normal skin.

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INTRODUCTION

The aging process actually begins at birth. At a particular time, the aging process follows a course consistent with the beginning of decline of body functions. Science has not been able to slow or reverse the aging process. However, progress has been made in increasing life expectancy. There is a wealth of information regarding functional changes in the body that result in aging. The skin, for example, undergoes many changes. With aging, the skin becomes thin, dry, less elastic and resilient, and more prone to tearing. It becomes more vulnerable to bothersome disorders. Even though skin disorders affect younger adults, inflammatory and infectious diseases as well as neoplasms of the skin are much more common in the elderly.

A review of anatomy and physiology of the skin will assist in understanding the scope of this lesson.

THE SKIN

This is a soft outer covering of the body. It plays a key role in protecting the underlying tissue against pathogens and injuries. Other functions include:

1. Sensations which occur due to presence of nerve endings that respond to heat, cold, touch, pressure and injuries.
2. The skin assists in regulation of body heat. This function is achieved due to the presence of blood vessels that, as they dilate, will increase perfusion and heat loss. Conversely, constriction of blood vessels reduces blood flow in the skin, and heat is conserved.
3. The skin protects the body from dehydration by acting as a semi-impermeable barrier to water loss.
4. Moreover, the skin acts as an excretory organ via perspiration (removal of waste material).
5. Due to the presence of melanin in the stratum corneum, the skin acts as a barrier to UV light. Upon exposure to sun light, cholesterol excreted on the skin by the sebaceous glands is converted to vitamin D.
6. Finally, the skin stores water, fat and glucose. This is the largest organ in the body and constitutes about 16% of total body weight. It is made up of three major layers:
 - a. epidermis,
 - b. dermis and
 - c. subcutaneous tissue.

EPIDERMIS

This is the uppermost layer, and is made up of epithelial tissue. It does not contain blood vessels. It receives nutrition by diffusion from the underlying layer. Structurally, it consists of:

1. keratinocytes, which produce keratin
2. melanocytes, which form melanin, (the pigment melanin gives color to the skin and protects it from UV radiations) and
3. other cells.

The most significant portion of the epidermis is the keratinocytes which produce keratin. The epidermis consists of several layers. From the deepest to the upper layer, they are:

1. stratum germinativum,
2. stratum spinosum,
3. stratum granulosum,
4. stratum lucidum (a layer usually found in the skin of palms and soles of the feet).

The stratum germinativum produces new formed cells and pushes them upward. As the cells move toward the surface, nourishment and blood supply become inadequate, resulting in death of the cells. They are converted to

CE PRN[®] (ISSN 0199-5006) is owned and published by W-F Professional Associates, Inc. 400 Lake Cook Road, Suite 207, Deerfield, Illinois 60015.

William J. Feinberg, President. *CE PRN*[®] is published eleven times per year, monthly, January through November. Subscription rate is \$110.00 per year. Second-Class Postage paid at Deerfield, Illinois 60015 and at additional mailing offices. © 2009 by W-F Professional Associates, Inc.

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May 2010

keratin by the time they reach the stratum corneum. This process is known as keratinization. Shedding of keratin from the skin is a normal physiologic process. Millions of keratinized dead cells are shed every day.

DERMIS

This layer lies underneath the epidermis and consists mostly of collagen and elastin. Collagen includes a group of proteins that occur naturally and abundantly in connective tissue. It has been estimated that about 25 to 35% of body protein consists of collagen. Collagen also consists of 1 to 2% of muscular tissue. It serves as the main component of endomysium (connective tissue that surrounds muscle fiber). It plays a major role in providing strength and elasticity to the skin. Its atrophy leads to sagging of the skin and formation of wrinkles. Elastin is an elastic protein found in connective tissue which, as the name indicates, imparts elasticity to the skin. Together with collagen, these proteins allow the skin to stretch and become flexible yet resistant to wrinkling and sagging. These two elements, in particular elastin, allow the skin to return to its original shape when pressured, or pinched. Additionally, elastin is an important component of arteries, (i.e. aorta) to assist in blood flow, the lungs, elastic ligaments and the bladder. Blood capillaries are located beneath the epidermis and at the upper limits of the dermis. The dermis also contains:

1. nerves that provide the sense of touch,
2. hair follicles,
3. sweat and sebaceous glands, and
4. lymphatic and blood vessels.

SUBCUTANEOUS TISSUE (HYPERDERMIS)

This is the deepest layer of the skin and is composed of connective and fatty tissues (50% of body fat). It plays a role in:

1. insulation,
2. storage of energy in the form of fat, and
3. absorption (padding) of impacts.

Moreover, it attaches the skin to the underlying bones and muscles.

SKIN OF THE ELDERLY

The sebaceous glands secrete an oily, waxy material known as sebum whose function is to lubricate the skin and hair. Sebum consists of fatty acids, waxes, cholesterol derivatives as well as debris of dead cells. It keeps the skin and hair oily and helps prevent them from becoming dry, brittle and chapped. During childhood the sebaceous glands are relatively inactive. However, during puberty, secretions from the sebaceous glands are heightened. They gradually decrease with age. Thus if left untreated, skin of the elderly is dry, itchy and prone to tears and inflammation. In general, aging is due to intrinsic factors, such as genetics, and extrinsic factors.

The aging process is accompanied by loss of elastin and collagen resulting in wrinkles and sagging. While aging of the skin is inevitable, there are several extrinsic factors that may speed up the process and make the patient look older than the actual age. Lifestyle, occupation and health related decisions often determine the appearance of skin. Exposure to sunlight is damaging due to UV radiation. The skin becomes dry, leathery, wrinkly and saggy (photoaging). Freckles become darker in color, and the risk of developing skin cancer increases. Smoking, lack of exercise, weight loss, inadequate nutrition, exposure to cold weather, stress and lack of sleep are also contributors. The constant downward pull of gravity eventually will also take its toll. Moreover, dieting (constant gaining and losing weight) tends to cause loss of skin elasticity. Regardless of all of the causes, aging skin becomes noticeable as we get older. The first signs usually appear on the face, chin and neck.

AGING AND FUNCTIONAL CHANGES IN THE SKIN

These changes may include:

1. A decline in barrier function, physical protection, sensory perception, wound healing, temperature regulation, vitamin D production, sweat and sebaceous secretions, and immunologic responsiveness to infection.
2. A decline in absorption of topically applied medication.
3. Flattening of the dermal-epidermal junction resulting in the skin of the elderly more prone to tear and blister. This change may hamper the transfer of nutrients between epidermis and dermis.

4. A decrease in the production of epidermal keratin. It has been estimated that about a 30 to 50% decrease occurs at age 70. This decrease in the formation of new cells in the stratum germinativum will slow the shedding rate of dead keratinized cells, leading to a much rougher skin surface and delayed healing of epidermal wounds. Likewise, there is about a 10 to 20% decrease in the number of melanocytes per decade. This could explain the reason behind the sensitivity of the elderly skin to UV radiation. This increased vulnerability and age-related decline in DNA repairs increases the risk of developing skin cancer.
5. Production of vitamin D, which is facilitated by sun light, decreases due to lowered formation of epidermal 7-dehydrocholesterol, a precursor of vitamin D. This coupled with the tendency to reduce outdoor activity will compound the problem.
6. Up to 20% decrease in dermal thickness takes place. This results in increased skin damaged by sunlight.
7. The dermal layer loses up to 50% of the mast cells. Basal and cutaneous blood flow are decreased by approximately 60%. Thus release of histamine by mast cells and other inflammatory responses to immune challenge and exposure to sunlight are reduced. Response of blood vessels during injury and infection is detrimentally affected.
8. Changes in dermal papillae are believed to cause pallor, decreased temperature and thermoregulation of elderly skin.
9. Collagen atrophy and impairment of its synthesis may result in a decline in the rate of wound healing. Decreased elasticity of skin occurs due to collagen and elastin breakdown.
10. Aging causes a reduction in the amount and distribution of fat within the subcutaneous tissue. For example, a significant decrease of fatty tissue on the face and hands yet an increase in the abdomen and thighs.
11. Hair growth rate diminishes due to reduction in the activity of follicular keratinocytes.
12. In spite of the fact that heredity plays a role in the graying of hair, it occurs in approximately 50% of men and women by the age of 50, most likely as a result of loss or reduction in the number of melanocytes.
13. Cutaneous sensory perception to touch, heat and pain are reduced.
14. There is a decrease in the number of eccrine glands resulting in diminished sweat secretions. Likewise, apocrine glands decrease in size and in activity. However, the size and number of sebaceous glands apparently remain unchanged, but sebum production is reduced at the rate of 23% per decade.

COMMON SKIN DISORDERS IN THE ELDERLY

Seborrheic Dermatitis

This disorder affects the scalp, face (eyebrows, eyelids, and skin between the nose and upper lip), the central part of the body (trunk) and other areas where sebaceous glands are found in abundance. The surface becomes itchy, red, flaky and causes dandruff when the scalp is affected. The etiology of seborrheic dermatitis is unknown, but it may be due to: an inflammatory reaction to *Malassezia furfur* (a fungal infection), environmental, genetic, hormonal and immuno-system causes. Temporary hair loss may occur when the scalp is affected. If left untreated, this disorder may cause permanent hair loss as a result of damage to hair follicles. Seborrheic dermatitis is treated by using shampoos or topical lotions or creams that contain sulfur, selenium sulfide, climbazole, pyrithione, salicylic acid, tar, ketoconazole or a combination of two or more of these. In severe cases topical corticosteroid applications are recommended. However, chronic application may lead to skin atrophy. Rubbing with isopropyl alcohol tends to relieve itching. Seborrheic dermatitis has no permanent cure, but serious complications are rare and symptoms are usually manageable.

Pruritus (Itching)

Pruritus is common among the elderly and is characterized by an annoying sensation that triggers the desire to scratch or rub the skin. Itching may originate via the peripheral nervous system (dermal) or central nervous system (neurogenic or psychogenic). Receptors are found in the epidermis and the epidermal/dermal junction. The maximum sensitivity originates from the stratum germinativum. Itching does not occur in muscles, joints or inner organs.

The main cause of itching in the elderly is dry skin (xerosis). As discussed earlier, dry skin occurs with aging and is characterized by the presence of rough, dry skin with fine scaling and occasional appearance of fine cracks. It occurs as a result of a decrease in the amounts of oily secretions (sebum) from the sebaceous glands, allowing water loss from the skin. The age-related dry skin can be aggravated by environmental factors such as low humidity, frequent bathing and the use of harsh soaps. It can be triggered by medical disorders such as scabies, allergic reactions, yeast infections, pediculosis (lice infestation), kidney or liver disorders, diabetes, malnutrition and thyroid dis-

orders. The most common sites of itching are the legs, arms, trunk (especially between the lower ribs and hips), and the back of the hands. The skin appears dull, with fine scales that shed off easily. Scratching may lead to inflammation making the skin thick. In order to have successful treatment, attention must be directed to the cause. If itching is age-related, then the following guidelines are recommended:

1. Bathing should be limited to once daily.
2. Only use lukewarm (not hot) water.
3. Bath time should not exceed 15 minutes.
4. Harsh soaps should be avoided.
5. Pat the skin dry following bathing.
6. Body lotions and moisturizers, which are oil-based rather than water-based, should be applied immediately after bathing while the skin is still moist. Preparations containing alpha-hydroxy-acids, glycolic acid and urea are helpful.
7. In the presence of skin cracks or tears antibiotic ointments may be applied to prevent infection.
8. Use of humidifiers, especially during winter months, may prevent or reduce the severity of itching by keeping the skin moist.

Rosacea

Rosacea is a chronic, inflammatory skin condition that results in various types of erythema (redness), the most noticeable of which is on the middle of the face. Although the condition is sometimes called acne rosacea, it is not related to the common acne. It is normally a harmless, cosmetic condition, unless it affects the eyes. It usually occurs in fair-skinned, middle-aged and older patients. It may persist for life. It begins as a redness on the middle of the face (particularly on the cheeks, nose, or forehead), but it can progress to the neck, chest and scalp. Face blood vessels may dilate and become visible. The redness may become more permanent after ingestion of alcohol, hot beverages, spicy foods and exposure to heat or sunlight.

There are no tests available for diagnosis. The only diagnostic method is visual inspection. When in doubt, a dermatologist may attempt a trial of common treatments for positive diagnosis. Rosacea may be confused with acne vulgaris or seborrheic dermatitis.

Treatment is usually management of symptoms. Redness typically disappears after treatment and returns when therapy is discontinued. It is chronic. Lifelong use of medication is needed. Permanent remission in some cases may occur following sustained treatment. Avoiding factors that aggravate redness may be helpful in reducing intensity. Minimal exposure to sunlight and use of sunscreens is advisable. The application of topical antibiotics such as metronidazol, erythromycin and clindamycin is useful in preventing bacterial infection. Laser therapy and electrocautery have been used in an attempt to eliminate or minimize dilated blood vessels.

Skin Tags (Acrochordons)

A skin tag is a common disorder that is benign. They are composed of soft hanging skin which may appear anywhere on the body, but mostly on the neck, axillae, eyelids, groin folds and trunk of middle-aged or elderly patients. Overweight individuals appear to be most vulnerable. The tags appear as flesh-colored or pigmented lesions. Left untreated, most remain in place, while some drop off spontaneously. While skin tags are a skin growth, they are benign and do not become malignant. Likewise, they are not contagious. Skin tags are treated by removal.

Venous Ulcers

They are also known as varicose ulcers. They are sores or wounds that occur mostly on the legs and are believed to be a result of damage to veins or to defective valves in the veins. These sores usually are painful as they may penetrate deep into the skin. They account for about 70 to 90% of chronic wounds. When blood flow in the legs is reduced, stasis occurs resulting in vein and small capillary congestion. This in turn causes fluid to leak into the surrounding tissue, thereby preventing nutrients and oxygen from reaching the leg tissue. Subsequent deprivation of nutrients and oxygen leads to tissue damage and formation of the ulcers. When ulcers form, the outer layers of the skin die and are sloughed off exposing the inner portion of the wound. Infection may develop. Pus formation may occur especially if muscular tissue is involved.

Venous ulcers may be prevented by reducing leg swelling and pressure within the veins. To achieve this, the patient can wear compression stockings. When resting, elevating legs higher than the hip tends to reduce pressure and swelling.

Pressure Ulcers

Pressure sores (decubitus ulcers, bedsores) are skin lesions that occur as a result of prolonged unrelieved pressure on any part of the body. Under certain circumstances the skin is compressed between a bone and a hard object such as a bed, wheelchair, or other chairs. Very little or no blood flow reaches the tissue. This results in necrosis and formation of ulcers. Pressure also may cause blood vessels to rupture. The condition is aggravated by diabetes, peripheral arterial disease, humidity, friction, inadequate nutrition, temperature, age, incontinence and perspiration. It is common among bedridden patients. Patients who have reduced sensations or mobility are especially vulnerable. Pressure sores are preventable, but left untreated, or inadequately treated, they can be fatal. Prevention may be enhanced by turning the patient at least every two hours to relieve pressure. Patients who cannot change their positions should be assisted by caregivers. Drugs that cause drowsiness should be avoided as this will make patients sleep longer—often without frequent movement. The skin of bed ridden patients or those in wheelchairs should be inspected often for the presence of redness or erosion of the skin. Patients must avoid sitting or lying on the affected areas.

Pressure sores are insidious and develop in stages.

1. The first stage, which is superficial, consists of the formation of non-blanchable redness that remains noticeable even after removal of pressure. The affected area is tender and relatively hotter or cooler than the surrounding skin.
2. In the second stage the epidermis undergoes damage and erosion that extends only to the upper dermis and takes the appearance of a blister or abrasion.
3. As the damage continues, it gets deeper into the skin and may extend to the subcutaneous tissue. Once the ulcer reaches that depth, its healing becomes difficult due to inadequate blood supplies in this area.
4. The fourth stage constitutes the deepest penetration and reaches the muscles, tendons and, perhaps, bone. Later on, the ulcer becomes covered with dead tissue and begins to ooze an exudative substances. The ulcer becomes prone to infection that may extend to the bones. Pressure ulcers are not inevitable in the elderly. However, the conditions and structure of the skin makes them more likely. There is less muscle and fat, which act as a cushion. Additionally, wounds heal more slowly.

Superficial pressure sores can heal spontaneously (but slowly), if pressure is avoided and the skin is kept clean and dry. However, deep sores must be actively treated. Dead tissue that surrounds the sore should be carefully removed, preferably by a practitioner. Cleansing of the ulcer once or twice daily is recommended. Special dressings which do not stick to the wound should be used. In case of infection the use of antibiotics is warranted. Special care must be paid with bone infections, which usually heal very slowly.

Herpes Zoster (Shingles)

This is a viral infection. It is the same virus that causes chickenpox (varicella-zoster/VZV). The infection is accompanied by a painful blistering rash that is confined to a limited area, usually on one side of the body. The infection is most common between the ages of 50 to 70. It occurs only in patients who have been infected with chickenpox during their lifetime. When someone contracts chickenpox, the responsible virus causes acute symptoms that usually subside within two weeks. Disappearance of the symptoms does not mean elimination of the virus. It continues to live in the patient, and can cause shingles in later years. The VZV can remain latent in the nerves. Shingles occurs when the virus becomes active and travels via the nerve axons to the skin. Because nerves are involved, the condition can be very painful. The mechanism by which the virus remains dormant and then becomes active is not clear. It is believed that when the body's immune system malfunctions or weakens, as is the case in the elderly, the virus becomes active. Annual incidence of shingles worldwide ranges from 4 to 12 cases per 1000 individuals.

The initial symptoms include burning, painful, tingling and itching sensation in the affected area prior to the appearance of the rash. This is usually accompanied by systemic symptoms such as headache, fever and muscle aches. Rash appears on the skin over the infected nerve. Even though the rash is usually confined to the trunk, it may appear on arms and legs. Typically, the rash appears on only one side of the body. The rash first appears as a red lesion, but shortly thereafter it develops into painful blisters filled with fluid. There is no one single diagnostic test for shingles. Diagnosis depends on symptoms and the appearance of the rash.

The objectives of treatment are to relieve pain, speed up rash resolution, and prevent postherpetic neuralgia. Intake of antiviral medications such as acyclovir, valacyclovir or famciclovir should begin after rash development.

These medications may be given in combination with a corticosteroid. Analgesics including opioids may be used. Topical creams containing a local anesthetic may be applied to relieve burning, pain and itching. Patients who never had contracted chickenpox should avoid having contact with blisters present on skin of patients with shingles. Such contact may cause chickenpox. Pregnant women and children should refrain from contacting infected patients. About 50% of patients over 70 years of age will continue to have postherpetic neuralgia for life.

Photoaging (Dermatoheliosis)

Photoaging is a term used to describe damage or changes that take place after prolonged and frequent exposure to UV radiation from sunlight. Structural changes that occur in the skin as a result of aging are magnified and enhanced by radiation. Examples of these changes include:

1. Formation of dark spots (pigmentation) on the face.
2. The skin appears wrinkly and leathery.
3. Ruptured blood vessels.
4. Droopy skin.
5. The skin can become yellowish in color.
6. Increased risk of skin cancer.
7. Formation of actinic keratoses.
8. Epidermal dysplasia.

About 90% of patients who experience symptoms of pre-mature skin aging are sun lovers or their occupation requires them to be exposed to UVA or UVB radiation. UVA penetrates deeper into the skin than UVB. The process by which UVB and UVA cause photodamage is not fully known.

Radiation results in a breakdown of skin collagen and elastin at a rate that is much higher than due to aging alone. Accumulation of abnormal elastin and damaged collagen fibers triggers the formation of an enzyme known as metalloproteinase. The function of this enzyme is to remodel sun-damaged skin. However, intense exposure to sun allows the enzyme to actually break down collagen and form disorganized fibers termed solar scars. Repeated damage to the skin results in the development of wrinkles. In addition UV radiation triggers the formation of free radicals which may interfere with cell function and cause changes in genetic substances. Free radicals stimulate metalloproteinase which results in the formation of wrinkles. Moreover, free radicals can alter RNA and DNA, thereby increasing the risk of cancer. It is believed that UV radiation has detrimental effect on enzymes that assist repair damaged DNA.

Wrinkles that occur as a result of photoaged skin may be treated by using topical retinoid. Regular application of this medication results in improving skin appearance, reduction in roughness of the wrinkles and intensity of mottled hyperpigmentation within a few months. These improvements occur as a result of generation of new capillaries, production of new collagen fiber, uniform distribution of melanin and elimination of premalignant lesions of actinic keratoses. Tretinoin cream 0.05% is usually applied once daily at bedtime. Even though photoaged skin is not prone to erythema, peeling and burning sensations, patients should be aware that the initial application of these preparations may cause these symptoms.

The application of topical preparations containing alpha hydroxyl acid has been reported to improve the appearance of photoaged skin. Plastic surgery or procedures may be utilized. To achieve good therapeutic results and to minimize on-going photoaging processes, patients must avoid unnecessary exposure to sunlight and to regularly use sunscreens.

Actinic Keratosis (Keratoses)

Also known as solar keratosis, this condition is characterized by small hyperkeratinous, rough, scaly, flat and dry lesions that appear on the skin after prolonged, regular exposure to sunlight. Keratoses are precancerous in nature and range in size from 2 to 6 millimeters in diameter. The surface of the lesion is red and rough due to the scale that lies on top of the lesion. The lesions may be tender when touched. They usually appear on areas of the body that are exposed to sunlight such as the face, nose, ears, chest, forearms and back of the hands. Actinic keratosis occurs almost always in elderly patients. These lesions potentially could develop into squamous cell carcinomas, but not melanoma. It is important to note that sometimes keratosis may disappear spontaneously.

Patients who are prone to formation of actinic keratosis are fair-skinned and are exposed to sunlight because of their occupation or outdoor activities. Many years of exposure to indoor tanning equipment will have similar effects. Prevention of keratoses plays an essential part in treatment. Minimizing exposure to UV radiation is of a paramount

importance. The lesions can be removed surgically, or by freezing with liquid nitrogen which eventually results in their sloughing off. Creams containing 5-fluorouracil and the immunostimulator imiquimod may be used.

Actinic Purpura (Senile or Solar Purpura)

Actinic purpura is a skin condition that occurs as a result of prolonged exposure to sunlight and results in damage to skin connective tissue. The area appears purple as a result of extravasations of blood into the tissue. The patient complains of painless purple blotches or bruise-like lesions. This condition mostly involves the forearms and dorsa of the hands. It is almost exclusively encountered in the elderly, especially those taking blood thinning drugs like aspirin or warfarin. It has been estimated that about 12% of patients over age 50 experience this condition. The leakage of blood into the surrounding dermal tissue is due to the atrophy and fragility of the blood vessels caused by UV radiation. The weakened blood vessels become susceptible to the effect of minor trauma, pressure and friction, resulting in blood extravasations. Normally blood is reabsorbed in 1 to 3 weeks. Actinic purpura resolves spontaneously without being associated with any complication. However, it may be cosmetically distressing because brown pigmentation may remain behind after healing.

SELECTING A DRUG FOR TREATMENT

Most skin disorders are treated with topical preparations that may be used in combination with systemic medications. Included are ointments, creams, lotions, soaks, compresses, powders or gels. Ointments are recommended for dry, rough and scaly skin. However, because they're occlusive, they may cause maceration of leaking ulcers. Moreover the oiliness is cosmetically undesirable as it promotes shine to the area. Creams are utilized for treating exudative conditions. Since creams contain water, they tend to dry up, and may not provide adequate relief to damaged skin.

Lotions also are appropriate for exudative areas and impart coolness to the skin. Lotions are cosmetically acceptable. Their disadvantage is that release of ingredients is not as efficient as with creams or ointments.

Powders are sprinkled on moist areas to keep them dry. Their disadvantage is that there is difficulty to keep them at the site of application.

Soaks and compresses are applied on highly exudative or weeping areas.

Gels are used for oily or exudative skin.

SUMMARY

Aging causes anatomical and physiological changes of the skin. The skin becomes drier; there are more wrinkles; and there can be sagging because of atrophy due to lesser amounts of collagen and elastin (two elements that keep the skin firm).

Exposure to UV radiation tends to cause the skin to age at a faster rate and may lead to cancer. Treatment is typically topical, or may include surgery (for cleansing deep wounds).

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FUTURE TOPICS

- HINI
- HIV/AIDS
- Role of Pharmacist in Pharmacogenetics
- Drug Induced Osteoporosis
- Barriers to Drug Compliance
- Medication Errors

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LESSON EVALUATION

Please fill out this section as a means of evaluating this lesson. The information will aid us in improving future efforts. Either circle the appropriate evaluation answer, or rate the item from 1 to 7 (1 is the lowest rating; 7 is the highest).

1. Does the program meet the learning objectives?

- | | | |
|--|-----|----|
| List layers of the skin & state their function | Yes | No |
| Describe anatomy & physiology of the skin | Yes | No |
| Discuss idiosyncrasies associated with skin of the elderly | Yes | No |
| Compare skin of elderly to normal skin | Yes | No |

2. Was the program independent & non-commercial Yes No

	Poor		Average		Excellent
3. Relevance of topic	1	2	3	4	5
					6
					7

4. What did you like most about this lesson? _____

5. What did you like least about this lesson? _____

Please Select the Most Correct Answer

- | | |
|--|--|
| <p>1. A function of the skin is to assist in:</p> <p>A. Regulation of blood pressure</p> <p>B. Regulation of body heat</p> <p>C. Control of growth</p> <p>D. Secretion of hormones</p> | <p>6. Another term for xerosis is:</p> <p>A. Swollen muscle</p> <p>B. Dry skin</p> <p>C. Oily skin</p> <p>D. Hyperpigmentation</p> |
| <p>2. What is correct regarding collagen?</p> <p>A. Provides strength & elasticity to skin</p> <p>B. Protects skin from UV radiation</p> <p>C. Comprises about 50% of body protein</p> <p>D. Provides energy</p> | <p>7. A skin disease characterized by erythema on the middle of the face is:</p> <p>A. Dermatoheliosis</p> <p>B. Decubitus</p> <p>C. Acrochordons</p> <p>D. Rosacea</p> |
| <p>3. Which of these assists to increase secretions of sebaceous glands?</p> <p>A. Androgens</p> <p>B. Fatty foods</p> <p>C. Old age</p> <p>D. Topical counterirritants</p> | <p>8. What is incorrect about keratoses?</p> <p>A. Consists of small hyperkeratinous lesions</p> <p>B. Can potentially become cancerous</p> <p>C. Common in young adults & the elderly</p> <p>D. Lesions appear after prolonged exposure to sunlight</p> |
| <p>4. Which of these is not correct about the effect of aging on functional skin changes</p> <p>A. Production of less epidermal keratin</p> <p>B. Dermis loses up to 50% of mast cells</p> <p>C. Increased collagen formation</p> <p>D. Decreased thermoregulation</p> | <p>9. Purpura is characterized by:</p> <p>A. Extravasation of blood into tissue of involved area</p> <p>B. Colorless lesions</p> <p>C. Lack of blood resorption by tissue</p> <p>D. Occurs in covered areas of the skin</p> |
| <p>5. A characteristic of seborrheic dermatitis is:</p> <p>A. Affects only the scalp</p> <p>B. Is due to viral infection</p> <p>C. Cure can be achieved by using corticosteroids for one month</p> <p>D. Affected area is itchy, red & flakey</p> | <p>10. Ointments are recommended for:</p> <p>A. Dry, rough skin</p> <p>B. Exudative conditions</p> <p>C. To keep skin dry</p> <p>D. Weeping areas of skin</p> |

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Program ID #707-000-10-005-H01-P.

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