Aging Skin

Structure of the Skin
Mechanisms of Aging
Aging Changes in the Skin
Common Skin Problems in Patients over Age 65
Prescription Medication Costs
Elder Abuse
We Are All Getting Older
Clint Eastwood
Morgan Freeman
Sophia Loren
Keith Richards
“Getting old is a fascinating thing. The older you get, the older you want to get.”

-Keith Richards
British Guitarist
Born in 1943
Healthy Age Life Expectancy by Country

Source:
http://www.cdc.gov/mmwr/preview/mmwrhtml/figures/m713qsf.gif
Benefits of Getting Older

• Feel more self secure
• Worry less about pleasing others
• Experience of life
• Maturity
• Insight
• Accumulate friends
• Gain children, grand children, great grand children...........
But

• What happens to your skin as you get older?
Decrease in Skin Functions with Aging
Why is the Skin Important?

- Largest organ in the body
- Responsible for water equilibrium
- Protection
- Immune surveillance
- Regulating body temperature
- Sensation
Protective Function of Skin

- Ultraviolet light
- Physical trauma
- Infectious organisms: bacteria, viruses, parasites, fungus
Layers of the Skin
Structures of the skin

**Dermis** contains many structures (organs)

- Connective tissue
- Collagen tissue bands
- Elastic fibers
- Numerous blood vessels
- Nerve endings
- Muscles
- Hair follicles
- Oil glands
- Sweat glands
- Ground Substance
Why Does Our Skin Get Older?
Photoaging and Chronologic Aging
UV light Produces Free Radicles in Cells
Skin cells accumulate DNA damage due to shortening of chromosomes over time.

- Loss of ability to repair DNA damage
- Mutations accumulate in DNA and chromosomes
- Loss of ability of cells to divide and replicate
Aging due to DNA damage
Sunlight Induced Aging
Effect of Sun Damage on Skin

• Individuals aged 18 to 94: progressive decrease in skin thickness on sun–exposed areas of face and forearms
• No change in thickness in on moderately sun exposed areas of ventral forearm and ankle
• Increase in thickness of buttock skin
Shared molecular mechanisms in intrinsic & extrinsic skin aging
Loss of Important Skin Cells

• Decreased epidermal cells—loss of moisture retention
• 6-8% Decrease in pigment producing cells with each decade after age 30—melanocytes. Elderly do not tan easily.
• Langerhans cells—immune cells decrease with age
• Decrease in oil gland (sebaceous) function by 23% per decade in men and 32% decade in women
• Decrease in sweat gland function—decreased sweating capacity in older adults—increased susceptibility to heat exhaustion and stroke
• Hair follicles—decrease in number, rate of growth, and diameter of hair shaft
The Skin’s Immune System

Decreased ability to fight infections
Reactivation of Chicken Pox---Herpes Zoster (Shingles)

Decreased ability to fight cancer

Increase in autoimmune activity—susceptibility to rheumatoid arthritis and psoriasis
Damage to the Dermis

• Dermis—middle layer of the skin
• Loses thickness, elasticity, and water content
• Collagen breakdown due to enzymes (metalloproteinases) –sunlight induced
• Elastic tissue—elastosis. Elastic fibers appear thickened, more coiled, and haphazard arrangement
• Decreases skin elasticity
• Wrinkles develop
Blood Vessel Changes in Aging Skin

• Blood vessels decrease in dermis
• Lower blood flow
• Decreased nutrient exchange
• Lower skin surface temperature
• Skin pallor
• Pericytes surrounding the vessel decrease leading to loss of vascular stromal support—increased bruising in the elderly
Young Skin vs Old Skin Microscopic View
Is Loss of Hair Follicles Important?

- Stem cells in hair follicles are important for wound healing
- Delayed wound healing in elderly
Wound healing in the Elderly

• 30-50% decrease in epidermal cell turnover rate between the third and eighth decades

• Decrease in response to growth factors

• Decrease in tensile strength of wound healing
Visible Signs of Aging

- Pale skin and laxity
- Hair graying
- Diffuse hair loss
- Fragile nails
- Benign, Precancerous, and Cancerous skin tumors
- Xerosis or Rough skin
- Irregular pigmentation and impaired tanning
Aging-- Elastosis

Visible wrinkling in sun exposed skin
Degeneration of elastic fibers in dermis
Purpura – areas of skin bleeding
Occurs with minimal trauma
Usually on the extremities
Signs of Aging Skin
Aging Skin--Pigmentation

Letigines are brown spots
Occur in sun exposed areas
A sign of aging skin
Signs of Aging Skin
Morgan Freeman
Aging Skin

Cosmetic Concerns

Medical Concerns
Age-associated skin diseases
Skin Diseases

Top dermatologic diagnoses for all age groups at dermatologists visits in the US from 1993-2010
<table>
<thead>
<tr>
<th>Age</th>
<th>0-4</th>
<th>5-14</th>
<th>15-24</th>
<th>25-34</th>
<th>34-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75-84</th>
<th>85+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
<tr>
<td>Age</td>
<td>0-4</td>
<td>5-14</td>
<td>15-24</td>
<td>25-34</td>
<td>34-44</td>
<td>45-54</td>
<td>55-64</td>
<td>65-74</td>
<td>75-84</td>
<td>85+</td>
</tr>
</tbody>
</table>

Dermatology Online Journal, 2014: 20(4)
## Common Skin Problems in Older Patients

<table>
<thead>
<tr>
<th>Growths</th>
<th>Rashes</th>
<th>Ulcers</th>
<th>Emerging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actinic Keratoses</td>
<td>Psoriasis</td>
<td>Venous Leg Ulcer</td>
<td>Drug Costs</td>
</tr>
<tr>
<td>Basal Cell Skin Cancer</td>
<td>Allergic Contact Dermatitis</td>
<td></td>
<td>Elder Abuse</td>
</tr>
<tr>
<td>Squamous Cell Skin Cancer</td>
<td>Eczema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanoma</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Seborrheic Keratoses

- Incredibly common benign growth
- Tan light brown to dark black
- “stuck-on” appearance
- Chest, back, face, neck, and extremities
- Warty, crumbly surface
- May itch
- Rarely, a BCC or SCC can arise in a SK
- Treatment: Cryosurgery, curetage, shave removal
Seborrheic Keratoses
Benign Growths

Seborrheic Keratoses
Seborrheic Keratoses
Seborrheic Keratoses
Skin Cancer

• Each year in the U.S. over 5.4 million cases of nonmelanoma skin cancer are treated in more than 3.3 million people.

• Each year there are more new cases of skin cancer than the combined incidence of cancers of the breast, prostate, lung and colon.

• Over the past three decades, more people have had skin cancer than all other cancers combined.

• One in five Americans will develop skin cancer in the course of a lifetime.

• Between 40 and 50 percent of Americans who live to age 65 will have either basal cell carcinoma or squamous cell carcinoma at least once.
Cost of Treating Skin Cancer

• The annual cost of treating skin cancers in the U.S. is estimated at $8.1 billion:
• $4.8 billion for nonmelanoma skin cancers
• $3.3 billion for melanoma
Actinic Keratoses

Actinic keratosis is the most common precancer; it affects more than 58 million Americans.

Scaling, crusty growths in sun-exposed areas
Flat or elevated; discrete or multiple; red, pigmented, or skin colored

Feel rough or like sandpaper
Actinic Keratoses

More common over age 50, but can occur as young as age 20

Can be prevented by sunscreen, low fat diet, and niacin

Risk of transformation to squamous cell cancer is 0.025% to 16% per year for individual lesions 8%
Actinic Keratoses
Actinic Keratoses
Actinic Keratosis
Actinic Keratoses Treatment

• Annual cost per year to treat in Medicare population with liquid nitrogen is $480,732,749 (2013 data)
• Total US population cost of treatment with destructive procedures plus medication in 2004 was $1.2 billion
• Destructive treatments: Liquid nitrogen, curretage, photodynamic therapy, laser
• Drug therapy: Chemotherapeutic drugs: 5-fluouracil topical; Immune stimulators: Imiquimod; Other: Ingenol Mebutate topical
• Relapse rate is high: 25-75%
Should We Treat Actinic Keratoses?

• Up to 20% of lesions may transform into Squamous Cell Carcinoma
• If b/w 6-20 AK’s on a patient-- 4X greater chance of developing SCC
• If > 20 Ak’s on a patient---20X greater chance of developing SCC
• 60-82% of SCC’s arise directly within an AK or in near proximity to an AK
• 44-92% of primary lesions of SCC that progress to metastasis are contiguous with AK
<table>
<thead>
<tr>
<th></th>
<th>Normal Skin</th>
<th>Non-Malignant Neoplasms</th>
<th>Actinic Keratoses</th>
<th>SCCA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RAS mutations</strong></td>
<td>0%</td>
<td>0%</td>
<td>10-20%</td>
<td>10-20%</td>
</tr>
<tr>
<td><strong>p53 mutations</strong></td>
<td>0.1-4%</td>
<td>0-2.3%</td>
<td>20-59%</td>
<td>30-63%</td>
</tr>
<tr>
<td><strong>Bcl-2 activity</strong></td>
<td>0.76</td>
<td>0.83</td>
<td>1.45</td>
<td>2.92</td>
</tr>
<tr>
<td><strong>Telomerase activity</strong></td>
<td>0-10%</td>
<td>0-7.5%</td>
<td>60-75%</td>
<td>74-100%</td>
</tr>
<tr>
<td><strong>Survivin activity</strong></td>
<td>0%</td>
<td>0%</td>
<td>40-95%</td>
<td>64-92%</td>
</tr>
</tbody>
</table>
Basal Cell Carcinoma

• Most common skin cancer in the United States
• More than 4,000,000 cases per year in the US
• Fair complexion, easy sunburning, and a history of blistering sun burns are risk factors
• Common locations are face, neck, ears, trunk, and extremities
• Risk of metastasis is 0.0028% to 0.55%
Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Skin Cancer treatment

- Liquid nitrogen destruction
- Curettage
- Excision
- Mohs surgery
- Topical imiquimod
- Superficial Radiation treatment
- Cure rate is highest for surgical treatments
MOHS surgery

• Highest cure rate for removal of basal cell carcinoma
• Advantages—least amount of normal tissue is removed
• Generally a smaller scar results
• Indicated for skin cancers on face, larger skin cancers, or recurrent skin cancers
MOHS Surgery
Squamous Cell Carcinoma

• Second most common form of skin cancer
• Caused by ultraviolet radiation
• Chronic, long term sun exposure is a major risk factor
• Favored locations: face, scalp, neck, and dorsal hands
• Less than 4% of cases are at risk for metastasis
• In African-Americans, SCC is 20% more common than BCC
Squamous Cell Carcinoma Clinical Features

- Frequently arises in an actinic keratosis
- Superficial SCC’s may look like a red, dry patch of skin
- Hard, elevated dull red bump with smooth or crusting surface
- Increases in size
- Can ulcerate
- May develop in a pre-existing scar-- leg ulcer, burn scar, chronic ulcerating skin disease
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Risk of Death with Squamous Cell Carcinoma

18 % when metastasis occurs in SCC arising in site of chronic sun damage

20-30% when metastasis occurs in SCC arising in a scarring process
Squamous Cell Carcinoma Treatment

• Primary treatment is surgical excision
• MOHS surgery for SCC on face, recurrent cancers, around finger tips, or larger SCC’s
• Topical chemotherapy creams can be used for superficial squamous cell carcinoma
• Superficial Radiation Treatment for selected SCC’s
• Megavoltage or Electron Beam radiation for tumors that have spread to deeper structures
Malignant Melanoma

- Skin cancer that arises in pigment cells (melanocytes)
- 50% arise in a pre-existing mole
- 50% develop on previously normal appearing skin
- Cancer cells can grow radially (superficially) or vertically
- Single greatest risk factor for spread is depth of invasion in the skin
What is my risk for melanoma?
Melanoma Clinical Features

- Asymmetry
- Border Irregularity
- Color Variation
- Diameter >6mm
- 5% of melanomas may lack pigmentation
Normal Mole
Pigmented Skin Lesions are a Challenge
Dermoscopy
Dermatoscopic Image of MM vs SK
Melanoma
Melanoma
Amelanotic Melanoma
Lentigo Maligna Melanoma

• Tan or Brown macule that spreads peripherally
• More common in older patients on sun damaged skin
• May exist on skin for 5-20 years before it becomes a health threat
• Grows and darkens very slowly
Lentigo Maligna Melanoma
Lentigo Maligna Melanoma
Melanoma Treatment

• Early excision of the cancer is most important
• Survival depends on depth of tumor cells in skin
• Advanced disease can be treated with newer chemotherapy and immunotherapy drugs
• Radiation therapy in selected cases
Melanoma Survival Based on Depth of Melanoma Cells
Melanoma Metastasis
Melanoma Survival
Psoriasis

• Chronic skin disease that affects 1 to 3% of world’s population
• Impacts quality of life
• Metabolic complications
• 3.2% of psoriasis patients have onset over age 60
• Most geriatric-onset patients have milder disease
Psoriasis – An Autoimmune Problem
Clinical Features of Psoriasis

• Red, dry, scaling plaques of various sizes
• Scalp, knees, elbows, umbilical region, and sacrum
• Usually symmetrical
• Itching or burning may be present
• Up to 1/3 patients have inflammatory arthritis
Types of psoriasis\textsuperscript{1,2}

Plaque psoriasis: the most common form

• Plaque psoriasis affects 80% to 90% of all patients with psoriasis¹

• Plaque psoriasis can affect all parts of the body, but is most commonly found on the scalp, elbows, torso, and knees¹

• Generally, the plaques develop in a symmetrical pattern, such as on both knees or both elbows¹

Psoriasis
Nail Psoriasis
Psoriasis Risk Factors

• Obesity
• Chronic Infections
• Tobacco Use
• Alcohol excess
• Stress
• Family History
• Trauma to the skin
Psoriasis Co-Morbidities

• Cardiovascular disease
• Obesity
• Insulin resistance
• Depression
• Hypertension
• Cancer
• Joint destruction
Psoriasis and Cardiovascular Disease

• Psoriasis patients have increased chance of heart attack.
• Independent risk factor separate from tobacco use or elevated cholesterol
• Risk of MI is relative to disease severity
Patients with psoriasis may develop psoriatic arthritis

- Psoriatic arthritis usually appears ~10 years after the first signs of psoriasis\(^2\)

- 85% of people develop skin symptoms before they develop joint symptoms\(^3\)

- Approximately 30% of psoriasis patients will develop psoriatic arthritis; the likelihood increases 5-fold with severe skin disease\(^4,5\)

- Psoriatic arthritis is a chronic disease of the joints and skin. It includes these symptoms\(^1,3\):
  - Psoriasis
  - Joint pain and stiffness
  - Swollen fingers and toes
  - Nail pitting or nail changes

X-ray image courtesy of Michael A. Bruno, MD.
Judging the severity of plaque psoriasis

The National Psoriasis Foundation (NPF) defines severity of psoriasis by body surface area as:

- **Mild**: <3% of the body
- **Moderate**: ≥3% to 10% of the body
- **Severe**: >10% of the body

Physicians should also evaluate psoriasis based on the involvement in crucial body areas, such as the hands, feet, face, and genitals.

Cost of Psoriasis Care

• The annual US cost of psoriasis amounted to approximately $112 billion in 2013
• Direct Care Cost
• Loss of Productivity Cost
• Co-Morbidity Costs
• Mild psoriasis: Outpatient visit costs dominate
• Moderate to Severe Psoriasis: Pharmacy costs dominate
Psoriasis Treatment Overview

- Topical creams
- Corticosteroids
- Vitamin D analogues (calcipotriene)
- Retinoids (tazarotene)
- Tar ointments or creams
- Salicylic acid
Psoriasis Treatment Overview Beyond Creams

• Phototherapy: Narrow-band UVB, PUVA
• Oral systemics: Methotrexate, cyclosporine, oral retinoids (acitretin), Apremilast
• Subcutaneous injection: etanercept, adalimumab, ustekinumab, secukinumab, ixekizumab
• Intravenous injection: Infliximab infusion
Narrow Band UVB phototherapy

• Successful in clearing in psoriasis in 70% of patients
• Requires 20-45 treatments
• Low skin cancer risk
• Can be used as maintenance treatment
• Usually performed in a doctor’s office, but can be done at home
• Average annual cost of in-office treatment is $5700
• Home phototherapy devices: $2500-$7000
Systemic Medications

• Indicated if 5-10% or greater body surface involved
• Indicated for severe disease in important localized areas—hands, feet, face, scalp, or genital area
• Indicated if psoriatic arthritis is present
• Side effects: kidney, liver, bone marrow, or immune suppression depending on drug that is used
• Higher prevalence of kidney disease elderly patients limits some drug choices such as methotrexate or cyclosporine
Newer May Not Be Better
Biologic Modifier Drugs

• “Designer” drugs using monoclonal antibodies against a specific target antigen
• Very expensive
• Generally lack side effects affecting liver, kidney, or bone marrow function
• Tumor Necrosis Factor (TNF) is a common protein target
• Are also use to treat other diseases: rheumatoid arthritis, Crohn’s disease, psoriatic arthritis, ankylosing spondylitis
Biologic Modifier Drugs for Psoriasis
## Psoriasis drug costs

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Monthly Cost ($)</th>
<th>Injections per year</th>
<th>Annual Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enbrel</td>
<td>50 mg</td>
<td>4180.60</td>
<td>52</td>
<td>50,167</td>
</tr>
<tr>
<td>Humira</td>
<td>40 mg</td>
<td>4185.60</td>
<td>26</td>
<td>50,227</td>
</tr>
<tr>
<td>Stelera</td>
<td>45 mg / 90 mg</td>
<td>9021.50 / 18,070.50</td>
<td>4 / 12</td>
<td>36,086 / 72,282</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cosentyx</td>
<td>300 mg</td>
<td>4142.80</td>
<td>12</td>
<td>49,713</td>
</tr>
<tr>
<td>Taltz</td>
<td>80 mg</td>
<td>4190.70</td>
<td>12</td>
<td>50,288</td>
</tr>
</tbody>
</table>
Psoriasis Before and After Ustekinumab
Outcomes and Long-Term Recommendations

• Long-term outcomes in elderly patients not well studied among various psoriasis treatments
• Biologic Modifier Drugs have the best efficacy, but are most expensive
• Most elderly patients with psoriasis have mild disease
• Topical creams have the lowest compliance rate—especially for patients living alone or suffering from degenerative arthritis
• Compliance is poor without proper education.
Eczema (Atopic Dermatitis)

• Chronic relapsing skin disease affecting children and adults
• Dry skin and itching
• Associated with asthma
• Prevalence is 1-3% of elderly patients
• More common in males
• Not an allergic contact dermatitis
Eczema -- Dermatitis
Eczema Clinical Photographs
Staph aureus and Dust Mites
Immune Malfunction in Eczema
Annual Cost For Treatment of Eczema 2004

- Direct Cost—$1.009 Billion
- Indirect Cost due to Loss of Productivity—-$619 Million
- Total of Direct and Indirect Costs—-$1.628 Billion
- Poor Quality of Life Impact—-$2.585 Billion
Care of Mild to Moderate Eczema
Challenges in the Elderly

- Home environment may not be clean
- Difficulty applying creams and lotions
Treatment and Prognosis

- Moisturizers for skin on entire body
- Topical steroids
- Antihistamines
- Phototherapy with NBUVB
- Combined topical steroids and oral steroids
- Clinical Improvement rate is 80%
- Clinical Remission (disappearance of dermatitis >6mos) rate is 36%
- Complete Remission rarely occurs in elderly patients
Allergic Contact Dermatitis

- Occurs after the skin reacts to an allergen that it had previously been exposed
- Delayed reaction begins usually 48 to 96 hours after exposure
- Results in redness, swelling, and blisters
- Poison ivy, nickel allergy
Allergic Contact Dermatitis in the Elderly

• Lower incidence of poison ivy allergy
• But higher incidence of multiple skin allergies with age
• Fragrance allergy increases with age and is more common in females
• Increased incidence of allergy to topical medications in the elderly
• Annual cost of treatment $1.625 billion dollars in 2005 for all aged patients
Contact Dermatitis From Pacemaker
Contact Dermatitis Due to Home BP Cuff
Polytetrafluoroethylene (PTFE) Contact Dermatitis
Contact Dermatitis Lanatoprost Eye Drops
Contact Dermatitis Hair Dye
Contact Dermatitis Neomycin
Contact Dermatitis Diclofenac Cream
Contact Dermatitis
Contact Dermatitis Lavender Oil
Treatment of Allergic Contact Dermatitis

• Avoid the offending chemical
• Patch testing to find the cause
• Topical steroids for mild to moderate cases
• Antihistamines to reduce itching
• Systemic steroids for severe cases—usually for at least 9 days of treatment.
Patch Testing
Venous Stasis Ulcers

- Most common type of ulcer in clinical practice
- 80% of all leg ulcers are due to venous stasis
- Chronic and difficult to treat
- Only 40-70% heal after 6 months of therapy
Venous Leg Ulcers

• Chronic wounds in general are responsible for $7 billion per year in annual health care costs worldwide, with venous leg ulcers being the most common type of leg ulcers.

• The average cost for a venous leg ulcer is estimated as $16,000 per treatment episode in the North American population.

• The prevalence of venous leg ulcers in the elderly is as high as 1% to 2% of the elderly population in North America.

• Frequently recur.

• Decreased quality of life.
Leg Vein Function: Normal and Abnormal
Varicose Veins
Risk Factors for Venous Disease

- Advanced age
- Female sex
- Family history of leg ulcers
- Non-Hispanic white race
- Obesity
- History of deep venous thrombosis (DVT) or phlebitis, previous serious traumatic leg injury, chronic lower extremity edema, a sedentary lifestyle, and any occupation requiring prolonged long periods of standing.
Treatment

Compression is main form of therapy

Surgical procedures to reduce venous hypertension do not accelerate healing, but reduce chance of recurrence
Evaluation of Lower Extremity Ulcer
Venous Leg Ulcer Treatment

• Compression is mainstay of treatment
• Long stretch (elastic) bandages
• Short stretch (inelastic) bandages
• Intermittent compression devices
• Multicomponent bandages
• Compression devices Support system
Compression Bandages
External Compression
Compression Stockings
Compression Bandages Versus Stockings

- Group 1 treated with 2 layered stockings
- Group 2 treated with 4-layer bandages.
- A high dropout rate was recorded in the stocking group - discomfort and pain (38% in hosiery group vs 28% in the group with bandages)
- Healing rates of VLUs did not differ between therapies
- Use of stockings possible higher quality adjusted life-years --patients who often preferred stockings and had an overall lower cost than those with bandages. In theory, the use of compression stockings during treatment also prepares patients for lifelong use of stockings as maintenance compression therapy
Clinical Course

• 40-60% heal after 6 months of treatment
• Larger ulcers heal slower
• Only 13% of ulcers > 5 cm² heal within 1 year
• 15% of venous ulcers never heal
• Recurrence rate is 15-71%
Drug Prices
National Consumer Price Inflation Index—11% Inflation

Brand Name Drugs 401% mean price increase

Topical Antineoplastic Drugs 1240% increase

Topical Steroids 290% increase

Generic Drugs 279% increase

Cost of Physician and Clinical Services 0.1% Increase
Elder Abuse
Elder Abuse

• Highly prevalent, but under reported
• Estimated 1 to 2 million Americans >age 65 - mistreated by caregiver
• 2003 survey of 80 nondemented residents—44% reported physical abuse
Types of Elder Abuse

Physical Abuse
Sexual Abuse
Neglect
Self-neglect
Risk Factors for Abuse of Elder Victims

• Increased Age
• Female Sex
• Nonwhite race
• Low socioeconomic status
• Functional disability (difficulty communicating needs)
• Cognitive impairment (dementia)
Who is the abuser?

• In nursing homes—characteristics of caregivers predict mistreatment more than characteristics of the victims
• Community settings—spouse or adult child is primary caregiver and abuser
Risk Factors among Caregivers for Elder Abuse

• Mental health issues
• Physical health problems
• Alcohol or other substance abuse
• Financial motives—financial dependence on elder
• History of verbally abusive relationship with elder
• History of violence in other contexts
• Excessive workload (nursing home setting)
Elder Abuse—Dermatologic Clues
Elder Abuse—Dermatologic Clues
Puncture Wounds
Elder Abuse
Elder Abuse
Blunt Trauma
Raccoon Eyes—Elder trauma
Cutaneous Signs of Elder Female Sexual Abuse

- Bruising and abrasions > 50% of abused older women
Malnutrition and Neglect 2002 Study

• 10,000 person study from developed countries
• 1% malnutrition rate in community dwelling health elderly
• 4% malnutrition rate in elderly receiving home care
• 37% malnutrition rate in elderly in institutions
Nutritional Deficiency as a Sign of Elder Neglect
Barriers to Physician Reporting or Referral

- Unclear on definition of elder abuse and neglect
- Lack of knowledge of key risk factors for elder abuse and neglect
- Mistreatment involved minor injuries or subtle signs
- Fear of being incorrect
- Lack of resources to assist with evaluation for elder abuse
- Insufficient knowledge or lack of protocol for referral to Adult Protective Services or local police
Screening Questions for Elder Mistreatment

- Has anyone close to you tried to hurt you or harm you recently?
- Are you afraid of anyone in your family?
- Has anyone forced you to do things you did not want to do?
- Does someone in your family make you stay in bed or tell you that you are sick when you know you are not? (excessive use of restraints)
- Has anyone forced you to have unwanted sexual contact?
- Do you feel you are getting the care you at need at home (or in the nursing home)?
Summary

• Aging leads to common skin problems in the elderly
• Early recognition of these problems leads to favorable outcomes
• Elderly patients have an increased chance of allergy to topical medications and medical devices
• Increase in prescription costs are a worsening problem
• Elder abuse is under recognized, but dermatologists can help
Thank you