Skin Cancer
Early Detection & Early Cure – Identifying and Educating in Clinical Practice
–Melissa Pace, MSN, FNP-BC
Objectives

* Review the current stats and facts on skin cancer
* Review predisposing factors of skin cancer
* Review the basic pathophysiology of the 3 primary types of skin cancers
* Identify and describe clinical appearance of primary types of skin cancers
* Review current treatment modalities for skin cancer
* Review important patient education and skin cancer prevention practices
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Today we know a lot more about the effects of ultra violet radiation on our skin than we used to.

There is an abundance of research and statistics that now warn us of the negative impact of UV radiation.

We even see it frequently in mainstream media. For example....
“Tanning Mom”
Truck Driver with Unilateral Dermatoheliosis
Hitting Close to Home

Former BSU soccer player, Amy Dunn, loses her life to melanoma at age 29.

Amy was an exceptional and inspiring woman, daughter, sister, athlete, educator, and friend to many.

Dunn’s team mates took the opportunity to use her story to educate others on the importance of regular skin cancer screening.
Ashley Trenner’s last dying wish was to let people know about the dangers of tanning -- “it’s just not worth it.”
Even with all the media attention on NEGATIVE effects of UV radiation, we are still getting mixed messages....
H&M creating a deadly standard of beauty?
“….sun kissed skin so hot, we’ll melt your popsicle…..”

Song: California Gurls
- #1 on Billboard charts for 6 consecutive weeks
Skin cancer is the most common form of cancer in the United States. More than 3.5 million skin cancers in over two million people are diagnosed annually. An estimated 3,170 deaths from nonmelanoma skin cancers will occur in the US in 2013. Melanoma kills an estimated 8,790 people in the US annually. 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. About 90 percent of nonmelanoma skin cancers are associated with exposure to ultraviolet (UV) radiation. About 86 percent of melanomas can be attributed to exposure to ultraviolet (UV) radiation. More than 90 percent of the visible changes commonly attributed to skin aging are caused by the sun.
The National Institute of Health and the World Health Organization have identified broad spectrum UV as a human carcinogen.

Which type of UV rays cause skin cancer? The answer is both UVA and UVB.

Both UVA and UVB rays are linked to DNA damage and cell mutation, even without a sunburn.
Ultra Violet A Rays

- long wavelength (320-400 nm)
- accounts for up to 95% of the solar UV radiation reaching Earth's surface
- Can penetrate into the deeper layers of the skin
- plays a major part in skin aging and wrinkling (uv”A”= aging)
- Present during all daylight hours (from sun up to sun down) and throughout the winter months
- Can be 30 to 50 times more prevalent than UVB rays (depending on time of year). Penetrates glass and clouds. We are exposed to large doses of UVA throughout our lifetime.
- Initiates and exacerbates the development of skin cancers.
- Turns off protective surveillance langerhan cells, puts them to “sleep” so they can't see bad cells formed-immunosuppressive.
Ultra Violet B Rays

- Mid-range wavelengths (290-320 nm)-shorter than UVA rays
- Responsible for burning (and tanning) (UV “B”= burning)
- The intensity of UVB varies by season, location and time of day. The most significant amount of UVB hits the U.S. between 10 AM and 4 PM between April and October.
- UVB rays do not penetrate glass,
- UVB rays do penetrate clouds
- UVB tends to cause DNA damage in more superficial epidermal layers, plays a key role in development of skin cancer.
People Believe: Tanning beds are safer than the sun

**Real story:** 95% of tanning customers receive more than the recommended dose of UV radiation.

Tanning beds can expose an individual to 4 times the amount of UVA and 2 times the amount of UVB as compared to a similar period of actual sun exposure.

Tanning Beds

- The indoor tanning industry has an annual estimated revenue of $5 billion.
- Nearly 30 million people tan indoors in the U.S. every year; 2.3 million of them are teens.
- 71 percent of tanning salon patrons are girls and women aged 16-29.
Are “Fake Bakes” the New Nicotine?

- World Health Organization put tanning beds in the same carcinogen category as cigarettes.
- 1/10 <15 years old use tanning beds
- 1/3 of female teens 15 and older use tanning beds
- 1/5 American females have used a tanning bed
- 1/3 claim that tanning helps depression and anxiety

Sources:
ASDS Skin Source Smart Brief of 2/09/2011
1/3 are addicted by the psychological dependency of dissatisfaction with skin color, coupled with psychiatric dependency to endorphins in 4 published studies.

Respondents said they suffer opiate withdrawal-like symptoms when tanning is stopped.

Source:
Any tan or burn is a sign of skin damage
Exposure to UV rays acts as an insult, the skin acts in self-defense by producing more melanin
Both UVB and UVA rays damage the cells' DNA, potentially causing mutations. This same DNA damage is the cause of tanning.
Over time, this damage will lead to prematurely aged skin and in some cases-skin cancer.

http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm186687.htm
Currently California and Vermont ban the use of tanning beds for all minors under 18, and at least 33 states regulate the use of tanning facilities by minors.

Some counties and cities also regulate the use of tanning devices.

Idaho still working on a consensus

Source: www.skincancer.org
What about spray tans?

- The active ingredient in spray tanners gives an SPF of about 2.

- Dyhydroxyacetone is safe unless inhaled so stay out of spray tanning booths.

- A mechanism to apply color could be a viable alternative to UV tanning: The “tanning pill” is going through FDA.
What about Vitamin D?
Let’s not call it the sunshine vitamin

American Academy of Dermatology
Position Statement on Vitamin D

“There is no scientifically validated, safe threshold level of UV exposure from the sun or indoor tanning devices that allows for maximal vitamin D synthesis without increasing skin cancer risk.”

Source: http://www.aad.org
The American Academy of Dermatology recommends that an adequate amount of vitamin D should be obtained from a healthy diet that includes foods naturally rich in vitamin D, foods/beverages fortified with vitamin D, and/or vitamin D supplements. Vitamin D should not be obtained from unprotected exposure to ultraviolet (UV) radiation.

For vitamin D supplementation, vitamin D₃, the natural form of vitamin D, is preferable over vitamin D₂.

Source: aad.org-position statement on Vitamin D
### Dietary Reference Intakes for Calcium and Vitamin D

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<tr>
<th>Life Stage Group</th>
<th>Calcium</th>
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<th>Vitamin D</th>
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<td>Recommended Dietary Allowance (mg/day)</td>
<td>Upper Level Intake (mg/day)</td>
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*For infants, Adequate Intake is 200 mg/day for 0 to 6 months of age and 260 mg/day for 6 to 12 months of age.

**For infants, Adequate Intake is 400 IU/day for 0 to 6 months of age and 400 IU/day for 6 to 12 months of age.
“Based on review of more than 1,000 studies and expert and stakeholder testimony, the National Academy of Sciences Institute of Medicine (IOM) concluded that while the evidence for associating vitamin D levels with bone health was strong, the evidence for other conditions was inconsistent, inconclusive and insufficient to inform nutritional requirements.”

—American Academy of Dermatology position statement on Vitamin D.
If you still prefer to get Vitamin D the risky way keep in mind:

The human body needs only 20 minutes of noontime (11-2) exposure a day (head/neck/hands) to make 1000 IUs of vitamin D.

Source:
Roehr B. Dermatology Times 2011; 32(1): 1
3 primary types of skin cancer

* Basal Cell Carcinoma
* Squamous Cell Carcinoma
* Melanoma
The most common form of skin cancer worldwide
2.8 million cases diagnosed each year
Average lifetime risk for Caucasians to develop BCC is 30%

Pathophysiology:
Basal Cell Carcinomas (BCC) arise from keratinocytes in the basal layer of the epidermis and adnexal structures (hair follicles, eccrine sweat ducts).

Causes:
Main risk factor is UV light exposure
UVB radiation greater role, but both UVA and UVB contribute
Light exposure not the only factor. 20% of BCCs arise on non-sun exposed skin. These other factors include: genetic susceptibility, genetic conditions, other forms of radiation (xray), immune suppression

Basal Cell Carcinoma

Risk Factors

- Most commonly found in patients with fair skin, light eye color, and poor tanning ability (Fitzpatrick type 1, 2 skin)-but is still seen in other skin types
- Living in geographic regions closer to the equator (Hawaii, Australia, Africa)
- Male to female ratio 2:1
- Patients 50-80 years of age are affected most often
  - 20% occur in patients younger than 50 years (so don’t be fooled)
- Patients previously diagnosed with skin cancer are more likely to have another
- Chronic infections
- Skin inflammation
- HIV and other immune deficiency diseases
- Chemotherapy and anti-rejection drugs used in organ transplantation

Basal Cell Carcinoma

- **Risk of Metastasis**
  - Low Risk of Metastasis (<1%)
  - Although risk of metastasis is low, basal cell carcinoma can damage and disfigure local tissue—especially the eye, ear, or nose if it grows nearby.
  - Course of BCC is unpredictable. May remain small for years or may grow rapidly

- **Subtypes – Histologic patterns**
  - Superficial—most common
  - Nodular—most common
  - Micronodular
  - Infiltrative
  - Morpheaform (sclerotic)
  - Mixed patterns
  - Pigmented
Basal Cell Carcinoma

* **Appearance**
  * 70% appear on head and neck region (25-30% occur on nose alone)
  * 25% on the trunk and extremities
  * 5% penis, vulva, perianal skin

* **Common characteristics:**
  * Waxy papules with central depression
  * Pearly appearance
  * Erosion or ulceration: Often central and pigmented
  * Bleeding: Especially when traumatized
  * Oozing or crusted areas: In large BCCs
  * Rolled (raised) border
  * Translucency
  * Telangiectasias over the surface
  * Slow growing: 0.5 cm in 1-2 years
  * Black-blue or brown areas
Basal Cell Carcinoma

* Appearance:
  * Not all BCC’s are created equal, and present in a variety of fashions. Not always a “pearly pink papule”
  * Commonly patients will present with a “sore than never heals”
  * May even present as a large flat erythematous patch with fine scale and telangiectasia, no induration
  * May resemble a scar
  * Pigmented BCC may appear as a shiny dark brown or black papule or a translucent papule with rolled borders and central specks of dark brown pigment
  * Often they are not painful or tender
Basal Cell Carcinoma

Superficial Basal Cell Carcinoma
Basal Cell Carcinoma

Morpheaform (sclerotic) basal cell carcinoma
Basal Cell Carcinoma

Superficial Basal Cell Carcinoma
Basal Cell Carcinoma

Nodular Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Carcinoma
Basal Cell Carcinoma

Superficial Basal Cell Carcinoma
Basal Cell Carcinoma

Pigmented Basal Cell Carcinoma
Basal Cell Carcinoma

Pigmented Basal Cell Carcinoma
Basal Cell Carcinoma
Treatments vary according to cancer size, depth, location, patient’s age and general health, and the likely cosmetic outcome of specific treatments.

Surgical: Most common treatment with high cure rates. Well tolerated

- First biopsy for tissue diagnosis: Shave vs. punch
- Excision: 2mm margin for nodular, 3-4mm for other types > 90% cure rate
- Curettage and Electrodesiccation – used for well demarcated superficial lesions, cure rates 80-90% with proper technique
- MOHS-sparcs greatest amount of tissue, cure rates 98% or higher. Time consuming, must be done by certified MOHS surgeon.
  - For tumors that are more difficult to treat (ie, infiltrative BCC, morpheaform BCC, micronodular BCC, and recurrent BCC) or in areas where sparing normal tissue is important (nose, eyelid, etc)
Basal Cell Carcinoma

Topicals (use only for superficial BCC)
* Topical 5-fluorouracil 5% cream-80% cure rates may be used to treat small, superficial BCCs in low-risk areas.
* Imiquimod 5% cream-80-90% cure rates if patient can tolerate twice daily applications for 6-12 weeks
* Tazarotene: 30-50% 3 year cure rates
* Interferon intralesional injections: still considered experimental, larger studies needed. Also requires multiples office visits, is expensive, causes discomfort with administration, adverse effects post treatment

Radiation:
* X–ray beams directed at the tumor, no anesthesia. Requires multiple treatments per week for a few weeks. Used for tumors that are hard to manage surgically, for elderly patients, or others in poor health. Cure rates up to 90% percent, but technique can involve long-term cosmetic problems and radiation risks.
* **PDT (Photo Dynamic Therapy)**
  Useful in patients with multiple BCCs. A photosensitizing agent is applied, then activated by light the next day. Selectively destroys BCCs. PDT is FDA approved for treatment of superficial and nodular BCCs. Cure rates vary from 70-90%. Patients are photosensitive for 48 hours after the treatment - must stay out of the sun.

* **Hedgehog Pathway Inhibitors**
  Vismodegib (Erivedge) is the first FDA-approved drug for advanced forms of basal cell carcinoma. It selectively inhibits a key transmembrane protein involved in hedgehog signal transduction of cancerous epithelial cells. In recent studies 20% showed complete response, with 30-50% partial response.
Basal Cell Carcinoma

**Low risk**
- ED & C
  - Tissue conservation
  - No histologic margin control
  - Slow healing by secondary intention
  - Scarring
- Central face, periorbital and periauricular areas <6 mm
  - Cheeks, forehead, neck, scalp <10 mm
  - Trunk, extremities <20 mm
- Well-defined borders
  - Slow growing
- Histologic subtype
  - Nodular
  - Superficial

**High risk**
- Central face, periorbital and periauricular areas >6 mm
  - Cheeks, forehead, neck, scalp >10 mm
  - Trunk, extremities >20 mm
- Ill-defined borders
  - Fast growing
  - Recurrent BCC
  - Incomplete excision
- Histologic subtype
  - Morpheaform
  - Basosquamous
  - Micronodular

**Moh's micrographic surgery**
- Highest cure rate
- Conservation of tissue
- Expensive

**Radiation therapy**
- Recurrent BCE
- Good cosmetic results
- Tolerated by elderly
- Not for young patients
- Expensive

*Figure 21-9* Adapted from Martinez JC, Otley CC: MayoClin Proc 76:1253, 2001. *PMID: 11761506*
Squamous Cell Carcinoma

* Second most common form of skin cancer among whites. Accounts for 16% of skin cancers.
* 700,000 cases of SCC are diagnosed each year in the US.
* In the US, the average lifetime risk for to develop SCC is 9-14% among men, and 4-9% among women.

* Pathophysiology
  Atypical squamous cells originate in the epidermis from keratinocytes and proliferate indefinitely.

* Causes:
  UVA and UVB Radiation (sun, tanning beds, PUVA medical devices)
  Chemical exposure (arsenic, petroleum)
  Some types of HPV are found in tumors of genitalia and periungual tumors

Source:
Risk Factors
- Chronic sun exposure from sun, tanning beds, PUVA treatment
- Fair skin
- Previous dx with BCC
- 2:1 more common in men than in women
- Exposure to x-rays
- Exposure to chemicals
- Chronic infections
- Skin inflammation
- HIV and other immune deficiency disease
- Chemotherapy
- Heredity

Risk of Metastasis
- 2-6%
- 2,500 deaths each year in US
- Higher risk for lesions >2cm, depth 4mm
- More aggressive forms found on ears, lips, nose -with a 10-14% risk of metastasis
- More aggressive forms also found in areas of prior radiation or thermal injury, scar tissue, chronic ulcers

Patients ages 50-70 affected most common
Subtypes

- Differentiated SCC
- Undifferentiated SCC (higher risk of metastasis)
- SCC in situ
- Bowens Disease (form of SCCIS, can be found in no sun exposed areas)
- Actinic Chelitis-precancerous form of SCC on lips

- Actinic Keratosis (pre cancerous form of SCC)
  - 2-10% will become SCC
  - 40-60% of SCC attributed to Actinic keratosis
  - Most commonly treated with LN2, but for widespread may use topical treatments such as Imiquimod, Carac (5FU), Photodynamic therapy. A new agent called Picato .15% gel used once a day for just 3 days. Clinical trials shows complete clearance rates from 28-47% but longer term clearance has not been studied or proven yet.
  - Topical treatments should be initiated during winter months, because most are photosensitizing. Also at a time patient can avoid outdoor work and recreation.

Squamous Cell Carcinoma

* Appearance
  70% head/neck
  15% upper extremities

* Common characteristics:
  Indurated papule, plaque, nodule
  Surface shows adherent thick keratotic scale, or crust
  Eroded or ulcerated surface, with hemorrhage
  May have a warty appearance
  Squamous cell carcinoma in situ may appear as an erythematous patch with fine scale and subtle induration (may even resemble a thick Actinic Keratosis)
  Bowens disease-slightly elevated irregular erythematous scaly plaques with surface fissures
  Actinic Chelitis-thickened whitish discoloration of lip
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma in situ - Bowens Disease
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma

**Treatments:** very similar to that of BCC

- Surgical excision is usually the best option. Excisional surgery with 3-4mm margin (may be more for aggressive types). Cure rates > 90%

- MOHS used for poorly demarcated lesions, large lesions, lesions in areas where tissue needs to be spared (nose, around eyes, fingers). 94-99% cure rates

- Curettage and electrodesiccation

- Radiation-cure rates up 85-95%. Multiple visits. Adverse effects, long term effects
Cryosurgery-used only for superficial SCC, depending on technique can have 5 year cure of >90%

Topicals -imiquimod or 5-fluorouracil (5FU, Carac), Solaraze- only for AK’s

Photodynamic therapy: used to treat Aks, Cure rates for treating SCCIS vary.

Radiation may be used if the squamous cell skin cancer has spread to organs or lymph nodes, or if the cancer cannot be treated with surgery.

Topical treatments should not be used for thicker lesions-because malignant cells may be left at base of lesion
Squamous Cell Carcinoma

Low risk

ED & C
- Tissue conservation
- No histologic margin control
- Slow healing by secondary intention
- Scarring

Mask areas—face <6 mm
- Cheeks, forehead, neck, scalp <10 mm
- Trunk, extremities <20 mm

Well differentiated
- <4 mm depth
- Slow growing
- Well-defined borders
- Negative perineural or vascular invasion

High risk

Central face, periorbital and periauricular areas >6 mm
- Cheeks, forehead, neck, scalp >10 mm
- Trunk, extremities >20 mm

Poorly differentiated
- >4 mm depth
- Rapid growth
- Ill-defined borders
- Lip, Ears
- Perineural invasion
- Recurrence
- Immunosuppression
- Site of chronic inflammation
- Recurrent tumor
- Previous radiotherapy

Mohs micrographic surgery
- Highest cure rate
- Conservation of tissue
- Expensive

Excision
- Rapid healing
- Histologic margin control

Radiation therapy
- Recurrent BCE
- Good cosmetic results
- Tolerated by elderly
- Not for young patients
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In 2013, the American Cancer Society (ACS) estimates 76,690 new cases of melanoma in the United States and 9,480 deaths from the disease during the year.

Pathophysiology:
Unrepaired DNA damage to skin cells (most often caused by ultraviolet radiation from sunshine or tanning beds) triggers mutations that lead melanocytes in the basal layer to multiply rapidly and form malignant tumors.
Melanoma Incidence is Increasing

* Most rapidly increasing incidence of any fatal cancer!
* In US, growing 3% per year to 1/61 females, 1/41 males
* In past 40 years, 400% increase in males, 800% increase in females
* 56% found by dermatologists on full body examination in patients asking about some other skin problem
* Most common site for males is trunk; for females is legs.

Sources:
Melanoma Survival

- 8 year Survival improving: 92% for all in 2005 vs. 68% in 1975.
- 3.1% melanoma afflicts Hispanics, but 17.6% had metastasized
- 0.5% melanoma afflicts African Americans, but 26.4% had metastasized Vs. 12% of melanoma in Caucasians had metastasized when found
- Darker skin minority death rate is 2.5 times higher because 70% are flat acral lentiginous type on palms, soles, mucosa, genitals
- 5 year survival if no lymph nodal metastasis: 100% if <0.75mm thick; 60% if >4.0mm thick,
- but 97% to 40%, respectively, if lymph node is positive.

Sources:
Melanoma: tanning bed risk, do the math

- (UV) tanners are 74% more likely to develop melanoma than those who have never tanned indoors
- Those who tan indoors just four times a year increase their risk of developing melanoma by 11%
- Indoor tanners are also 2.5 times more likely to develop squamous cell carcinoma and 1.5 times more likely to develop basal cell carcinoma. Those who tan just four times a year increase their risk of developing BCC and SCC by 15%.

* Skincancerfoundation.org
Melanoma: Additional Danger

- 1/3 Melanoma survivors develop second cancer
- 1/5 get another melanoma
- 9% Lymphoma
- 4% Breast Cancer
- 4% other skin Cancer (BCC/SCC)
- 3% Thyroid Cancer

Source:
Impact of Risk Factors

- UV Exposure
- History of Melanoma risk of second is 6.5x
- Fair skin (I, II), risk of melanoma is 4x greater
- Red hair, blue eyes: 2x
- Indoor tanning: 2.5x
- History of basal or squamous cell cancer: 2.5x
- History of ≥2 blistering sunburns in childhood/teenage years: 2x
- Heredity: Each person with a first-degree relative diagnosed with melanoma has a 50 percent greater chance of developing the disease than people who do not have a family history of the disease.

Source:
**Relationship of Nevi (Moles) to Melanoma**

* 22-50% of melanomas microscopically have nevus cells
* If ≥25 nevi, risk of melanoma is increased 4.4x
* If ≥100 nevi, risk is increased 9.8x
* 1 to 5 atypical dysplastic nevi risk is increased 3.8x
* ≥6 atypical dysplastic nevi risk is increased 6.3x
* Any new or changing nevus in 25 year old or older is considered melanoma until proven wrong by biopsy
* “Ugly duckling” nevus is most sensitive marker for risk of melanoma

Teens Believe:
Skin cancer only happens in people over 40.

*Real story:* The incidence of melanoma in children, teens and young adults is growing every year.

*It is the most commonly diagnosed cancer in young Americans ages 25 to 29.*

*It is the number one cause of cancer death among 15 to 20 year olds.*
Recognizing Melanoma

- Any new growth if >25yrs old
- Any growing of width at base
- Any bleeding of a bump or nodule
- Any changes in sensation, itchy, tender, red or painful lasting more than 2 weeks
- Any spread of pigmentation beyond its border
- Any growth that looks or feel different than any other growth (ugly duckling) --#1 indicator
- Any change in a lesion present since birth
Remember the old A-B-C-D-E criteria:
but it MISSES 1/3 of melanomas

*A* = Asymmetry: Most early melanomas are asymmetrical. This means that you cannot draw a line down the middle and have equal parts on each side.
B = Borders

*Borders are uneven.*
C = Color

* Three or more different shades of brown, tan or black are often the first sign of melanoma.
Early melanomas tend to grow larger than common moles. Pay attention to spots that are larger than the diameter of a pencil eraser.
E = Evolving

* Changing in any parameter:
  * Color, growing at base, shape, feel, presence of itching, burning, painful
Scary Melanomas

Source: Arch Dermatol 2010; 146(3): 312
Scary Melanomas

Source:
Arch Dermatol 2010; 146(3): 312
Scary Melanomas

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Arch Dermatol 2010; 146(3): 313
Scary Melanomas

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Arch Dermatol 2010; 146(3): 313
Subtypes

* Dysplastic nevus (pre-melanoma)
* superficial spreading melanoma (SSM)
* lentigo maligna melanoma (LMM) and melanoma in situ
* nodular melanoma (NM)
* acral-lentiginous melanoma (ALM)
Melanoma

SUPERFICIAL SPREADING MELANOMAS
Melanoma

Lentigo Maligna
Melanoma

Superficial spreading melanomas
Melanoma

Nodular Melanoma
Melanoma

Acral- lentiginous melanoma
Treatments

* Biopsy to confirm tissue diagnosis
  * First choice-excisional biopsy with narrow margin (2mm)
  * Punch biopsy appropriate when suspicion for melanoma is low, lesion is large, or impractical to perform excision.
  * Punch through thickest portion of lesion, or portion with most erythema.
  * Do not shave. Will not give accuracy for Breslow depth measurement

Patient with Pigmented Lesion

History and Physical including examination of lymphatics

Diagnostic algorithms
- ABCDE Rule
- Glasgow 7-point checklist
- “Ugly Duckling” Rule

Diagnostic Aids
- Magnifying lens
- Woods Lamp
- Dermoscopy

Determine if the lesion is melanocytic first
Diagnostic algorithms
- ABCD rule
- Method of Menzies
- 7-point checklist
- Pattern analysis
Dermoscopy report dependent on the physician

Biopsy
- Diagnostic excision with 1-3 mm borders preferred
- Saucerization, shave, or punch biopsy is acceptable also*
- Subtotal shave or incisional biopsy of the thickest portion of the lesion if total excision is not possible*
- Subtotal biopsy should include representative samples of the lesion

Adequate pathological diagnosis that is convergent with clinical suspicions
Re-biopsy
Inadequate or clinically divergent pathological diagnosis

Follow-up tests and treatment if necessary
Patient education and skin self examination
Follow-up in Specialty Pigmented Clinic if necessary
Digital photography for surveillance if necessary

* Lesions with low suspicion for malignancy, large lesions, or lesions in cosmetically important or functional sites (i.e. face, ears, palms, soles, nail units)

Fig 1. Algorithm for determination of diagnosis and biopsy of pigmented lesions. (Adapted from the AAD and NCCN Guidelines.)
Once tissue diagnosis is confirmed, depending on Breslow thickness on pathology report the following will be initiated:

- Melanoma in situ: Excision with margins of 5mm+
- Other melanoma subtypes: Excision with margin of 1-2 cm (depending on Breslow thickness)
- Referral to Oncology
- May need lymph node biopsy, and lymph node dissection to check for metastasis
- If metastasis is present—further treatment with radiation and chemotherapy may be necessary.

New Drugs for Metastatic Melanoma

* ipilimumab (Yervoy)
  * “anti-CTLA-4” drug called ipilimumab (Yervoy), developed jointly by Medarex and Bristol-Myers Squibb. Ipilimumab is a monoclonal antibody, an immune protein that binds to CTLA-4 and inhibits it from functioning. This gives the immune system freer rein to identify and eliminate melanoma cells.

* PLX-4032
  * BRAF inhibitor

DERMOSCOPE = Dermatologist’s New Weapon

- It is a handheld cross polarizing microscope that increases accuracy in finding melanomas by 82%, SqCC by 86.5%, BCC by 90%.
The best way to treat skin cancer, is to prevent it in the first place- “it is easier to protect and prevent than to repair and repent.”

We must educate patients on the risk factors associated with BCC, SCC, and melanoma- especially UV exposure.
Prevention:
Just say no to tanning beds

* Educate your patients (especially women) on the risks associated with tanning beds. Give them the numbers. Tanning Beds=Bad News.

* Unfortunately you can still find false information on the web, and at salons that promote tanning and how “healthy” it is. Remember, tanning is a multibillion $$ industry.
A large amount of UV exposure we receive is indirect (through windows, reflections, etc) but still contributes to our risk of getting skin cancer. So get in the habit of wearing sunscreen on a daily basis.
Sunscreen Use Saves Lives

- Premalignant and malignant skin cell change, suppression of normal protective response, and extrinsic aging all occur at doses below redness/burning by UVL.

- SPF 30 or higher is proven to REDUCE the number of melanomas, pre-melanoma dysplastic nevi, actinic keratoses and SCC.

Sources:
FDA Approved Broad Spectrum (UVA/UVB) Protection

* Ingredients approved by the FDA for broad spectrum (UVA/UVB) protection:
  * Zinc Oxide
  * Titanium Dioxide
  * Avobenzone (Parsol 1789)
  * Mexoryl SX (Ecamsule)

* SPF – Sun protection factor. Measures sunscreens ability to prevent UVB from damaging the skin.
  * SPF 15 filters out approx. 93% of all incoming UVB rays, SPF 30 filters 97%, SPF 50 filters 98%. No sunscreen can block all UV rays.
  * Sunscreen filters out UVA too
  * Still re-apply every 2 hours, or after getting wet, sweating
  * No research shows that sunscreen can cause cancer (EWG recommends no Oxybenzone, and no Retinyl Palmitate, also no sprays, and powders)
How to apply sunscreen properly:

- The average sunscreen application by real people in real life worldwide is only about 1/3-1/4 of recommended amount. Which = 25% of the protection people think they are getting.

For full body application, you need one full ounce (the size of a shot glass) of product for the entire body.

Apply twice in the morning, to cool, clean dry skin, at least 30 minutes apart and 30 minutes prior to going outside.
Sunscren and sun protection

* Use SPF rating 30-50

* Sunscreen only safe for babies over 6 months old. Three products safest for babies:
  * Neutrogena full spectrum 100
  * Aveeno for Babies 60
  * Epionce ultrashield 50

* Because Sunscreen cannot protect us 100%
  * When outdoors, seek the shade whenever possible, especially between 10 AM and 4 PM.

Sources:
Hats and UV protective clothing

- **Ultraviolet Protection Factor (UPF) label:** Indicates what fraction of the sun’s rays can penetrate the fabric. UPF 50 allows only 1/50 of UVR.
- Baseball hats=“cancer caps”. Wear tightly woven wide brimmed hats with 3-4 inch brim. Look for UPF rating.
- A cotton t-shirt only gives a UPF rating of about 5.
- UV protective sunglasses
Healthy Skin Barrier

* Two skin abnormalities activate skin cancer:
  * Compromised stratum corneum (outermost layer of epidermis) barrier function due to dryness, cold, wind, fair, sensitive skin.
  * Activation of chronic inflammation due to exposure to pollutants, exfoliating skin care products, preservatives, heat

* Healthy skin **requires** an optimum barrier without chronic inflammation.

*Sources:*
  * Thornfeldt C. J Cosmet Dermatol 2004; 17(2): 663-7
* Educate patients on ABC’s of melanoma, Ugly duckling sign (#1 indicator), and to be seen for a mole that is itchy, tender sore, and or any mole that is new or changing.
* Yearly skin check
* More frequent skin checks for those with history of skin cancer. Every 4 months for first 3 years after cancer, then every 6-12 months.
* Teach patients to become familiar with their own skin. Check yourself each month, with a full length mirror and hand held mirror. Watch for changes in moles, watch for new growths.
* Providers: Be thorough with skin checks-don’t miss spots. Patient should change into gown/paper shorts. Look at bottom of feet, in between toes, buttocks, groin, etc. Skin cancer can pop up anywhere.

* Almost any skin cancer can be cured if found and treated early!
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