SKIN & WOUND CHALLENGES
IN PEOPLE OF COLOR
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Skin & Wound Challenges in People of Color

Gold STAMP Webinar
December 4, 2014
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Objectives

• Understand the basic physiology responsible for skin pigmentation
• Recognize normal, common dermatological variations in black skin
• Describe the appropriate methods to perform thorough skin/wound assessment in non-Caucasian skin
• Recognize the signs and symptoms of skin breakdown or pathology in non-Caucasian skin

What does the term “skin of color” encompass?

Accepted dermatologic term to describe people with all shades of pigmented skin

80% of world’s population consists of individuals with pigmented skin

Population of US roughly 29% non-Caucasian

By 2050 projected 48% US pop. will be non-Caucasian

Pigmentation

Normal skin color / tone composed of biochromes:
• Melanin - brown
• Carotenoids - yellow
• Oxyhemoglobin - red
• Reduced hemoglobin – blue

The total amount of melanin is the principle determinant of skin color.

Pigmentation

• Cutaneous pigment melanin produced by melanocytes
• No significant differences in the actual number of melanocytes (Szabo 1969)
• Differences in skin color are attributed to differences in the rate at which melanosomes are produced and melanized

Why Is This Important?

• Problem for clinicians when assessing patients with pigmented skin is lack of guidance and/or evidence
• Understanding racial differences in skin function and appearance is essential for:
  • Skin care
  • Prevention
  • Recognition & intervention
• Outside of color spectrum, there are very few differences within the integumentary system across ethnicities

Black Skin Care Considerations

• Although its thickness does not vary according to skin color, the stratum corneum of black people contains more layers of corneal cells.
• For this reason, the protective mantle is more compact and robust, despite the fact that it contains fewer ceramides (essential lipids).
• Because of this, black skin can sometimes appear ashy when it becomes dry.
Black Skin Care Considerations

• The pores, sweat glands and sebaceous glands in black skin are larger. Dark skinned people produce more sebum around hair follicles, have more microbial flora and a lower pH (more acidic) skin.

• Because of this, black skin is more prone to scarring from acne and to spontaneous peeling. However, it is also less sensitive to certain chemicals that irritate the skin of white and Asian people.

• Regardless of skin color, it is recommended to use products that contain squalane. (Montagna et al, 1993)

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Assessment Basics

Minimal skin assessment:

- Color
- Temperature
- Texture
- Turgor
- Moisture
- Integrity

Minimal wound assessment:

- Thorough patient exam
- Etiology/wound type
- Wound characteristics:
  - Location
  - Dimensions
  - Exudate (color/quality/quantity)
  - Tissue types present
  - Wound base
  - Wound edge
  - Periwound

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Post Inflammatory Hyper/Hypopigmentation

• Black skin may respond to trauma or inflammation by either an increase or decrease in pigmentation (dyschromia)
  - Melanocytes respond in exaggerated way
  - Marked change in pigment
  - Dyschromia following an inflammatory event is known as post-inflammatory hyperpigmentation
  - Increase in melanin production or uneven distribution of melanin
  - Excess pigment either in epidermis only or epidermis and dermis

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Skin Assessment Basics

Visual inspection alone NOT sufficient !!!

Talk/document

- Look (lighting!!!)
- Smell
- Touch
- Listen

Post Inflammatory Hyper/Hypopigmentation

• Hypopigmentation represents as either as localized or widespread loss of melanin in the skin
  - May be due to loss of functional melanocytes
  - Presents as depigmented macules and patches with feathered edges
Post Inflammatory Hyper/Hypopigmentation

- Many of these pigment alterations normalize over time
- Cause is unknown...possible influence of inflammatory mediators and reactive oxygen species
- Pigmentation is transient...may take months or years to normalize

Normal Variations in Black Skin

- **Futcher's (Voigt's) line:**
  - Sharp, bilateral, pigmented demarcation lines usually on lateral side of biceps
  - Incidence of 25% reported in heavily pigmented black persons
  - James found 79% of black females had at least one type of line
  - Benign condition

- **Midline hypopigmentation:**
  - Linear band overlying the sternum
  - Unknown etiology; may be inherited in an autosomal dominant pattern
  - Incidence approximately 30-40% in black persons
  - Males primarily affected; becomes less noticeable with age

- **Dermatosis Papulosa Nigra:**
  - Brown to black papules
  - Family history, more common in females

Normal Variations in Black Skin

- **Palmoplantar hyperpigmentation:**
  - Due to localized hypermelanosis
  - Polymorphous brown macules with sharp or indistinct borders
  - Creases on the palms often present with hyperpigmentation & may contain hyperkeratotic papules or pits

Normal Variations in Black Skin

- **Pigmentation:**
  - Many causes: Hyper/Hypopigmentation
  - Post-inflammatory reactive of months
  - Normal Variations in Black Skin
  - Diffuse or localized
  - Lessens over years
  - Hypopigmentation
  - May appear blue, brown, or blue-black
  - Papel changes
  - Creases may become hyperpigmented
  - May contain hyperkeratotic papules or pits in the creases
  - Plantar changes
  - Hyperpigmented macules may vary in color and distribution
  - May present with irregular borders
  - Dermatosis Papulosa Nigra
  - Brown to black papules
  - Family history, more common in females

Normal Variations in Black Skin

- **Linear hypomelanosis:**
  - Linear hyperpigmented nail streaks
  - Represents normal variant in over 50% of black people
  - Melanin is deposited in nail plate/matrix possibly due to trauma or UV light
  - Positive correlation with advancing age
  - Thumb & index nails most commonly involved
  - Often bilateral
  - Drugs such as antimalarials, bismuth, doxorubicin, and iodide may cause nail pigmentation
  - Associated with systemic diseases such as Addison's and Peutz Jegher's
  - An irregular nail pigment or history of changing lesion warrants biopsy as 20% of melanomas in black people are found in the nails

Normal Variations in Black Skin

- **Unilateral melanonychia:**
  - Linear melanonychia
  - Represents normal variant in over 50% of black people
  - Melanin is deposited in nail plate/matrix possibly due to trauma or UV light
  - Positive correlation with advancing age
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Normal Variations in Black Skin

- **Post-inflammatory hyperpigmentation:**
  - Sharp demarcation between darkly pigmented and lightly pigmented skin in the upper extremity
  - Follows spinal nerve distribution
  - Midline hypopigmentation
  - Line of hypopigmentation over the sternum
  - Lesions with age
  - Nail pigmentation
  - Diffuse nail pigmentation or linear dark bands on the nail
  - May appear brown, blue, or blue-black
  - Palmar changes
  - Creases may become hyperpigmented
  - May contain hyperkeratotic papules or pits in the creases
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Normal Variations in Black Skin

**Idiopathic Guttate Hypomelanosis:**
- AKA Disseminate Lenticular Leucoderma
- Small, white, irregularly shaped macules primarily on anterior legs
- Unknown etiology; benign
- Macules range in size from 2-6 mm
- More common in women over age of 40
- May be due to sun exposure
- Histologically, decrease in number of melanocytes

**Dermatosis Papulosa Nigra:**
- 35-77% of black individuals may be affected
- 50% have family history; more common in females and peaks in the 6th decade of life
- Benign, brown to black papules most common at the neck, face, trunk
- ‘Flesh moles’ do not require treatment although some seek cosmetic excision

Abnormal Variations
- Pigmentary skin disorders can cause emotional distress & social stigma
- Most of these can be seen in various ethnicities
- Disorders result of altered melanin production
- Most common pigmentary disorders for all races:
  - Albinism
  - Vitiligo
  - Melasma – often seen in pregnancy
  - Erythema (freckles)
  - Lentigo (liver spots)

Impact of Culture, Cosmetic Customs, Tribal/Social Markings
- Cupping, coining, spooning, moxibustion, salting, herbal rubs, acupuncture, body modification

How Does This Impact Wound Management?
- Thorough history & physical exam should reveal normal/abnormal dermatological conditions
- Early detection of skin lesions is top priority
- This can be problematic in darker pigmented individuals
- Erythema and/or blanching are not reliable indicators on their own

- LOOK
  - What is normal for the individual?
  - Compare area to surrounding skin or contralateral side if applicable
  - Is the area in question a site of previous injury/scar?
- LISTEN
  - Is the individual complaining of pain, itching or other sensory changes?
- TOUCH
  - Is the area warmer/cooler?
  - Is the area firm/boggy?
Inflammation

Signs of Inflammation
Includes:
- Erythema, heat, edema, pain, loss of function
- Itching subset of pain-follows same large C afferent nerve fibers
  - May be only complaint from patient; Do not ignore
- Changes in skin color & temperature you see and feel due to inflammatory process
- Failure to detect/observe may increase risk of patient developing pressure ulcer or wound infection

Dyschromia

Clinical Presentation Comparison
How would you classify these wounds?
A. Stage III
B. Stage IV
C. Unstageable
D. MASD (moisture associated skin damage)
Clinical Presentation Comparison

Unstageable sacral pressure ulcer in dark skin (left) & light skin (right)

Clinical Presentation Comparison

Which term best represents the areas denoted by the arrows
A Macules of repigmentation
B Hyperpigmentation
C Hypopigmentation

Clinical Presentation Comparison

Macules of re-pigmentation
Hyperpigmentation
Hypopigmentation

Clinical Presentation Comparison

Note characteristics of wound margin & periwound area
• Hyperpigmentation present due to inflammatory response
• Difficult to determine if tissue is bruised, infected or suspected deep tissue injury

Clinical Presentation Comparison

Sickle Cell Ulcer
Venous Ulcer

Visually, these two ulcers present similarly, however the etiologies are very different.
• 10% of African Americans are heterozygous for the sickle cell gene
• Of those with the disease, 25–75% develop sickle cell ulcers
• Typically arise from vaso-occlusion, trauma & infection
• Common at the malleoli
• Patients frequently present with multiple ulcerations unilaterally or bilaterally
• Severe pain common
• Young male adults (10-50) most often affected

Clinical Presentation Comparison

• From photo, very difficult to determine viable vs nonviable
• Clinicians cannot rely on visual cues alone in darkly pigmented individuals
• Thorough skin & wound assessment involves all senses!
Sickle Cell Ulceration

Differential diagnosis: venous/arterial insufficiency
- Crusting nodules in the distal one third of the leg
- Absence of hair follicles, hyperpigmentation, and atrophy of subcutaneous fat
- Periosteal thickening of underlying bone associated with pathology

Clinical Presentation Comparison

Stevens-Johnson Syndrome
- Lesions appear hyperpigmented and somewhat flush in dark skin and red and elevated in light skin.

Clinical Presentation Comparison

Kaposi’s sarcoma presents as confluent macules on dark skin and purple/red elevated nodules on light skin.
Same disease with significantly different clinical presentations.

Clinical Presentation Comparison

Maturing scar tissue on dark and light skin
- Black individuals are 2-19 times more likely to develop Keloids than their Caucasian counterparts.

Clinical Presentation Comparison

Hypertrophic scar: scar tissue is raised & rigid yet confined to the boundaries of initial injury
Keloid scar: scar tissue that extends well beyond the boundaries of initial injury

Photo shows a keloid after an ear piercing.
Summary

- Physiologically and histologically, few differences between Non-Caucasian and Caucasian skin
- Mostly rate of melanocyte production
- Dark skin has unique normal dermatological variations
- Skin and wound assessment must be thorough and comprehensive
- Use all senses
- As the population ages and as ethnic populations increase, awareness of normal and abnormal skin variations is critical

Recommended Textbooks on Skin of Color


References


References


References


References

- http://www.avant-images.com/