Chapter 30

The Child with a Skin Condition

Objectives

Recall the difference between the skin of the infant and that of the adult.

Identify common congenital skin lesions and infections.

Describe two topical agents used to treat acne.

Summarize the nursing care for a child who has infantile eczema. State the rationale for each nursing measure.

Objectives (cont.)

Discuss the nursing care of various microbial infections of the skin.

Discuss the prevention and care of pediculosis and scabies.

Differentiate among first-, second-, and third-degree burns: the anatomical structures involved, the appearance, the level of sensation, and first aid required.

List five objectives of the nurse caring for the burned child.

Objectives (cont.)

Describe how the response of the child with burns differs from that of the adult.

Identify the principles of topical therapy.

Differentiate four types of topical medication.

Examine the emergency treatment of three types of burns.

Discuss the prevention and treatment of sunburn and frostbite.

Skin Development and Function

Main function is protection

Acts as body’s first line of defense against disease
• Prevents passage of harmful physical and chemical agents
• Prevents loss of water and electrolytes
• Can regenerate and repair itself
• Along with the central nervous system, there are four basic skin sensations
  — Pain
  — Temperature
  — Touch
  — Pressure
• Secretes sebum
• Surface of skin is acidic
  — Protects from pathological microorganisms
• Summary of Integumentary System Differences Between Child and Adult
• Skin Disorders and Variations
  • Skin condition may be a manifestation of a systemic disease while others may be congenital
  • Skin color is an important diagnostic criterion in certain diseases
  • Skin tests can be used to diagnose allergies
• Hair is inspected for color, texture, quality, distribution, and elasticity
  — Condition of hair can change based on nutrition or disease status
  — Hair can change due to medications or medical treatments
• Skin Disorders and Variations (cont.)
• The nurse should describe the lesions with regard to:
  — Size
- Color
- Configuration
- Presence of pain or itching
- Distribution
- Generalized or localized
- Condition of skin around lesions

- Skin Disorders and Variations (cont.)

- Managing itching is a key component in preventing secondary infection caused by scratching
- Applying skin creams and ointments as prescribed is important, not only in the treatment of skin conditions, but also in the prevention of infections

- Terms Used to Describe Skin Conditions

- Stye
  - A stye, or hordeolum, is an inflammation of the sebaceous gland of the eyelid commonly seen in infants and children

- Strawberry Nevus

- Common hemangioma
  - Consists of dilated capillaries in the dermal space
  - Usually disappears without treatment
  - May not be apparent until a few weeks after birth
  - Begins flat, but becomes raised, bright red, elevated, and sharply demarcated

- Port Wine Nevus

- Present at birth
• Caused by dilated dermal capillaries
• Lesions are flat, sharply demarcated, and purple to pink
• Different from strawberry nevus in that the lesion darkens as child gets older, it does not disappear

Skin Manifestations of Illness

• Café au lait macules
  — Light brown, oval patches
  — Multiple macules are associated with neurofibromatosis (a chromosomal abnormality) and tuberous sclerosis

• Hypopigmented macules
  — Whitish oval- or leaf-shaped
  — Multiple macules associated with tuberous sclerosis

Skin Manifestations of Illness (cont.)

• Butterfly rash
  — Over nose and cheeks
  — Associated with photosensitivity
  — May be associated with systemic lupus erythematos (SLE)

• Scaling skin eruption
  — Around mouth in a horseshoe-shaped distribution
  — Also seen on chin, cheeks, or as a perianal rash
  — Has papules and scales
  — Associated with zinc deficiency in infants, as well as diarrhea and failure to thrive

Skin Manifestations of Illness (cont.)
• Vascular birth mark
  — Resembles a bruise that changes in appearance over the years
  — Hemangiomas around the chin may be associated with airway problems
  — Those appearing around the lumbar region may be associated with spinal problems

• Infections

• Miliaria
  • "Prickly heat" or a rash caused by excess body heat and moisture

• Intertrigo
  • "Chafing"

• Dermatitis in skin folds
  — Patches are red and moist
  — Aggravated by urine, feces, heat and moisture

• Prevention consists of keeping affected area clean and dry

• Seborrheic Dermatitis
  • "Cradle cap"
    — Inflammation of the skin that involves the sebaceous glands
Characterized by thick, yellow, oily, adherent, crustlike scales on the scalp and forehead

Resembles eczema, but does not itch

- Seen in newborns, infants, and at puberty
- Treatment is shampooing hair on consistent basis

Diaper Dermatitis

- Skin irritated by prolonged contact with urine, feces, retained laundry soaps, and friction
- May be seen in response to addition of solid foods, feeding, chemicals, contact with household substances
- Beefy red rash may be indicative of a Candida infection
- Prevented by frequent diaper changes with meticulous skin care

Acne Vulgaris

- Inflammation of the sebaceous glands and hair follicles
  - Sebaceous follicles enlarge at puberty
  - Secrete increased amounts of sebum (a fatty substance)
- Comedo is a plug of keratin, sebum, or bacteria
  - Open—blackhead
  - Closed—whitehead and are responsible for the inflammatory process of acne

Acne Vulgaris (cont.)

- Routine skin cleansing
- Greasy hair products and cosmetics should be avoided
- Excessive cleansing can irritate skin
• Multiple topical and oral treatments available
• Important to stress to teenager to follow medication treatments as prescribed
• Herpes Simplex Type I
  • Known as a cold sore or fever blister
  • May feel a tingling, itching, or burning on the lip
  • Vesicles and crusts form, takes up to 10 days to heal
  • Most communicable in the early phase of the outbreak
  • Recurrence is common as virus lays dormant until activated by stress, sun, menstruation, fever, or other causes
• Treatment is with antiviral medications, both oral and topical

Infantile Eczema
• Atopic dermatitis is an inflammation of genetically hypersensitive skin
  — Local vasodilation in affected areas
• Spongiosis or breakdown of dermal cells and formation of intradermal vesicles
  — Rarely seen in breastfed infants until they begin to eat additional food
  — It is a symptom rather than a disorder
  — Infant is oversensitive to certain substances
• Worse in winter
• Infantile Eczema (cont.)
• Lesions easily infected by bacterial or viral agents
• Infants/children with eczema should not be exposed to adults with cold sores because they may develop a systemic reaction with high fever and multiple vesicles on the eczematous skin
• May flare up after immunizations

• Lab studies show increased IgE and eosinophil levels

• Treatment for Infantile Eczema
  • Aimed at relieving pruritus, hydrating the skin, relieving inflammation, and preventing infection
  • Emollient bath, such as a mixture of cornstarch and baking soda or oatmeal is sometimes ordered
  • Bath oil helps keep skin moist and should be added to bath after the child has soaked for a while and skin is hydrated; the oil will help hold the moisture in the skin

• Medications
  • Corticosteroids
  • Antibiotics
  • Anti-itching medications

• Parent Teaching
  • Ointments should be completely washed off between applications
  • Cortisone creams should be avoided because they do not resolve the underlying cause

• How to apply topical medications
  • Best absorbed after a warm bath
  • Applied by stroking in direction of hair growth
  • Use proper amount of ointment
  • Elbow restraints can prevent an infant from scratching while allowing freedom of movement
  • Topical steroids should not be used when a viral infection is present

• Nursing Tip
  • Parents should be taught that kissing a wound to “make it better” can introduce organisms that can cause infection

• Staphylococcal Infection
• Primary infection may develop in the newborn in the umbilicus or circumcision wound
• May occur while in hospital or after discharge
• Infection spreads readily from one infant to another
• Small pustules on the newborn must be reported immediately
• Antibiotic ointments are used in some situations while in others, intravenous antibiotics are required
• If an infant has MRSA, the child is placed in contact isolation if hospitalized

• Scalded Skin Syndrome
• Caused by *S. aureus*
• Lesions begin with a mild erythema with a sandpaper texture
• Vesicles appear and rupture and peeling occurs, exposing a bright-red surface
• Skin appears scalded and child abuse is often suspected

• Impetigo
• Caused by *staphylococci* or group a beta-hemolytic *streptococci*
  — Bullous form seen in infants usually staphylococcal
  — Nonbullous form is seen in children and young adults
  — Newborns susceptible because resistance to skin bacteria is low

• Very contagious
• Treatment is either oral or parenteral antibiotics

• Fungal Infections
• Invade stratum corneum, hair and nails
• Fungi are larger than bacteria
• Tinea capitis—alopecia
• Tinea corporis—oval scaly inflamed ring with clear center
• Tinea pedis—lesions are between toes, on instep and soles; pruritic
• Tinea cruris—“jock itch”
• Pediculosis
  • Three types
    — Pediculosis capitis—head lice
    — Pediculosis corporis—body lice
    — Pediculosis pubis—pubic lice, known as crabs
• Survival of lice depends on blood extracted from infected person
• Scabies
• Parasitic
  • Caused by female mite
    — Burrows under skin and lays eggs, especially between fingers
    — Burrows contain eggs and feces
• Itching is intense, especially at night
• Thrives in moist body folds
• Spread by close personal contact
• Treatment is the application of permethrin
• All family members, including the home and car, require treatment
• Injuries
• Burns
  • Leading cause of accidental death between 1 and 4 years of age
• Sometimes result of child abuse or neglect
• Most likely to occur in early morning in house before parents awaken and after school
• Burns (cont.)
• Types of burns include
  — Thermal—due to fire or scalding vapor or liquid
  — Chemical—due to corrosive powder or liquid
  — Electrical—due to electrical current passing through the body
  — Radiation—due to X-rays or radioactive substances
• Burns (cont.)
• Can involve skin or mucous membranes
• If burned near face, flames may have been inhaled
• Assessing for patent airway is a priority
• Body Surface Area of a Child
• Child Burn Size Estimation Table
• Children’s Response to Burns
• Skin is thinner, leads to more serious depth of burn with lower temperatures and shorter exposures
• Immature response systems in young children can cause shock and heart failure
• Large body surface area of child results in greater fluid, electrolyte, and heat loss
• Increased BMR results in increased protein and calorie needs
• Children’s Response to Burns (cont.)
• Smaller muscle and fat content in the body results in protein and caloric deficiencies when oral intake is limited

• Skin more elastic, causing pulling on the scarring areas and resulting in formation of a larger scar

• Children’s Response to Burns (cont.)

• Immature immune system predisposes child to developing infections that complicate burn treatment

• Prolonged immobilization and treatment required for burns adversely affects growth and development

• Burns

• Moderate

  — Partial-thickness burns involving 15% to 30% of body surface

  — Full-thickness burns involving less than 10% of body surface

• Major

  — Partial-thickness involving 30% or more of body surface

  — Full-thickness burns involving 10% or more of body surface

• Both types are considered open wounds that have the added danger of infection

• The 6 Cs of Burn Care

• Clothing

• Cooling

• Cleaning

• Chemoprophylaxis

• Covering

• Comforting (pain relief)
• Electrical Burn
• Child should be assessed for entry and exit lesions
• Indicates path of electricity through the body
• Muscle damage can occur
• Mechanism of Electrical Injury
• Emergency Care of Burns
• Stop the burning process
• Evaluate the injury
• Cover the burn
• Transport to hospital
• Scalded Burns
• Emergency Care
• Establish an airway
  — Cyanosis, singed nasal hair, charred lips, and stridor are indications that flames may have been inhaled
  — An endotracheal tube may be inserted to protect the airway
• Establish an intravenous line
• Obtain blood and other body fluids for laboratory testing
• A nasogastric tube may be inserted to empty stomach and prevent complications
• Wound Care
• Wound Care (cont.)
• Wound Care (cont.)
• Wound Care (cont.)

• Can be painful; pain medications should be given in advance of the treatments to ensure adequate pain control is achieved

• Cleansing and debridement

• Loss of skin increases threat of infection and fluid loss caused by evaporation can be significant

• Nursing Care

• Protective isolation is instituted

• All instruments are sterile

• Ointments are applied with a sterile gloved hand or sterile tongue depressor

• Care must be taken to avoid injury to granulating tissue

• Nursing Care (cont.)

• Immediately report signs of infections

• Observe for fluid overload

• Burn victims have an increased demand on metabolism, require high-protein diet; additional vitamins and minerals may also be required

• Prevention of contractures is important

• Providing emotional support to the child and family is essential

• Sunburn

• Common skin injury due to overexposure to sun

• Can be minor epidermal burn to serious partial-thickness burn with blisters

• Goal of treatment

  — Stop exposure
Treat inflammation

Rehydrate skin

Sunscreen and Sunblock

Sunscreen

- Topical partially absorbs UV light
- Have an SPF rating to evaluate effectiveness in blocking sun rays

Sunblock

- Reflects sunlight
- Zinc oxide and titanium dioxide are effective

Frostbite

- Results from freezing of a body part
  - Chilblain: a cold injury with erythema and formation of vesicles and ulcerative lesions that occur as a result of vasoconstriction
  - In exposure to extreme cold, warmth is lost in the periphery of the body before the core temperature drops
- In extreme cases, the head and torso should be warmed before the extremities to ensure survival
  - A deep purple flush appears with the return of sensation, which is accompanied by extreme pain
- Can result in necrosis and may require amputation of the affected extremity

Question for Review

What safety measures must the nurse take when providing wound care management to a child with severe burns?

Review

Objectives
• Key Terms
• Key Points
• Online Resources
• Review Questions