SASKATCHEWAN RN ASSOCIATION

SASKATCHEWAN REGISTERED NURSES' ASSOCIATION

RNs WITH ADDITIONAL AUTHORIZED PRACTICE
CLINICAL DECISION TOOL
DECEMBER 1, 2016

ACNE VULGARIS ADULT & PEDIATRIC

DEFINITION

- Chronic inflammatory disease of the skin with an eruption of papules or pustules.
- Most common skin disorder in adolescents and seen to some degree in all adolescents.
- Non-inflammatory lesions such as open and closed comedones, are precursors to inflammatory lesions.
- Although not life-threatening, acne may have serious psychological effects on self-conscious adolescents.

IMMEDIATE CONSULTATION REQUIRED IN THE FOLLOWING SITUATIONS

- Children between 1-7 years of age do not normally produce significant levels of adrenal or gonadal androgens; hence, acne in this age group is rare.
  - When it does occur, an endocrine abnormality should be suspected. A workup by a pediatric endocrinologist is usually warranted to rule out adrenal or gonadal/ovarian pathology including the presence of androgen-secreting tumours.

CAUSES

- Acne involves the sebaceous follicles, which are sebaceous glands emptying into hair follicles.
  - Found mainly on the face, chest and back, these follicles are stimulated at puberty by increasing levels of androgen.
  - The follicles produce greater amounts of sebum (oil), which combines with keratin from the lining of the follicle to form plugs (comedones).
  - Bacteria (specifically *Propionibacterium acnes*) invade the comedones and produce lipases, which break down the sebum into free fatty acids. These compounds cause inflammation and subsequent rupture of the follicle.

PREDISPOSING AND RISK FACTORS

- Hormonal changes
- Mechanical
- Contact
- Environmental

- Emotions (stress, anxiety)
- Drugs

HISTORY

- Lesions on face/chest/back
- Psychological effects, including embarrassment and social withdrawal
  - Screen for depression, bullying, isolation
- Family history is predictive of acne severity and duration

PHYSICAL FINDINGS

Non-inflammatory lesions

- Comedones
  - Blocked follicle
    - Open comedo (blackhead)
      - Epithelium-lined sac filled with keratin and lipids with a widely dilated orifice, cylindrical, 1-3 mm in length; black colour because of melanin pigment in dermis and exposure to air (which causes discolouration of lipids and melanin); colour is not due to dirt.
    - Closed comedo (whitehead)
      - Precursor to inflammatory lesion; small, flask-shaped, white or skin-coloured, slightly elevated papule just beneath the surface of the skin.

Inflammatory lesions

- Papules
  - Develop from obstructed follicles that become inflamed
- Pustules
  - Larger lesions, more inflamed than papules; superficial or deep, contain a small amount of white pus-like material

Nodules and Cysts

- Nodules
  - Formed when deep pustules rupture and form abscesses
- Cysts
  - End product of pustules or nodules
  - Seen in more severe cases

- Prone to re-inflammation
- May scar on healing

DIFFERENTIAL DIAGNOSIS

- Corticosteroid-induced acne
- Demodex folliculitis
- Gram-negative folliculitis
- Keratosis pilaris
- Malassezia (Pityrosporum) folliculitis
- Papular sarcoidosis
- Perioral dermatitis
- Pseudofolliculitis barbae
- Tinea facie
- Molluscum
- Polycystic ovarian syndrome

COMPLICATIONS

- Scarring
- Pain
- Hyper-pigmentation of affected areas of the skin
- Altered self-esteem affecting social life
- Depressive disorder

INVESTIGATIONS AND DIAGNOSTIC TESTS

- None

MAKING THE DIAGNOSIS

- Mild Acne
  - < 20 comedones (whitehead or blackhead)
    Or
  - < 15 inflammatory papules
    Or
  - A lesion count < 30
- Moderate Acne

- 15-50 papules and pustules with comedones
- Cysts are rare
- Total lesion count may range from 30-125

- Severe Acne
  - Primarily nodules and cysts
  - Comedones, papules and pustules are also present
  - Total lesion count > 125
  - Scarring

MANAGEMENT AND INTERVENTIONS

Goals of Treatment

- Reducing sebum production
- Preventing the formation of microcomedones
- Suppressing *Propionibacterium acnes*
- Reducing inflammation to prevent scarring

Appropriate Consultation

- Consult a physician/RN(NP) if there is failure to respond to the therapies for mild to moderate acne or if the client presents with severe disease.

Non-Pharmacological Interventions

- Recommend mild soaps (e.g., Aveeno or Dove) or soapless cleansers (e.g., Spectro Gel or Cetaphil).
- Consideration may be given in individual cases to implementation of a low glycemic diet, refer to Appendix.

Pharmacological Interventions

- Interventions depend on the severity of acne.
- Aggressive treatment early on for those at high risk (family history of severe acne).

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Mild	Moderate	Severe
Topical benzoyl peroxide (e.g., Panoxyl Aquagel 2.5 or 5%, Benzagel 5%) qhs or bid *If necessary add* Topical antibiotics such as clindamycin (e.g., benzaclin). Female clients may benefit from combined oral contraceptive therapy.	Topical benzoyl peroxide (e.g., Benzagel) qhs or bid *and/or* topical retinoids such as tretinoin (e.g., Stieva-A) qhs *And* Oral antibiotics (e.g., doxycycline 100 mg orally once daily or minocycline 50 mg orally once daily for 4-6 weeks). Try to limit the use of antibiotic, if possible. Female clients may benefit from combined oral contraceptive therapy.	Oral antibiotics (e.g., doxycycline 100 mg orally once daily or minocycline 50 mg orally once daily) *And/or* Anti-androgen or oral and topical retinoid which require referral to a physician/RN(NP). Female clients may benefit from combined oral contraceptive therapy.

Client and Caregiver Education

- Counsel client/caregiver about appropriate use of medications (dose, frequency, compliance, etc.).
- Advise client to discontinue:
    - Acnegenic moisturizers/substances
    - Manual manipulation of lesions
    - Astringents and scrubs
- Advise client to use oil free makeup.
- Advise client to shave area lightly, once only and to follow the grain of hair growth.
- Affected areas should be cleansed once daily and no more than 2 times per day.

- Encourage persistence with medication (e.g., tretinoin), even if condition worsens temporarily after 2-3 weeks of treatment (any treatment requires 4-6 weeks before effective; topical agents are preventive and do not diminish existent lesions).
- Provide education about the "myths" of acne (e.g., not related to junk food or poor hygiene).
- Provide or arrange for counselling if depression, social withdrawal and bullying are present.

Monitoring and Follow-Up

- See the client every 2 or 3 weeks at the beginning of treatment to encourage compliance and monitor efficacy of interventions.
- Consult with a physician/RN(NP) if no improvement after 6 weeks of therapy.

Referral

- Referral to a dermatologist may be warranted in severe cases and those unresponsive to recommended treatments.

DOCUMENTATION

- As per employer policy

REFERENCES

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Appendix

Glycemic Index

- The glycemic index (GI) measures how a carbohydrate-containing food raises blood glucose. Foods are classified based on how they equate to a reference food such as glucose or white bread.
- Foods with a high GI raise blood glucose more than one with a medium or low GI.
- Examples of carbohydrate-containing foods with a low GI include: dried beans and legumes, all non-starchy vegetables, some starchy vegetables like sweet potatoes, most fruit, and many whole grain breads and cereals including barley, whole wheat bread, rye bread, and all-bran cereal.
- Foods that do not contain carbohydrates, like meats and fats, don't have a GI.
- The GI is expressed as a percentage of the value for glucose with low GI foods having a percentage of 55 or less, whereas medium GI foods are 56-69 and high GI foods are 70% or more.
- Fat and fiber tend to decrease the GI of a food.
- Other factors that can affect the GI of a food include: ripeness and storage time (the riper a fruit or vegetable is, the higher the GI), processing (juice has a higher GI than whole fruit), cooking method (al dente pasta has a lower GI than soft-cooked pasta), variety (converted long-grain white rice has a lower GI than brown rice).

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