Advances in Acne Management
Advances and Controversies in Pediatrics 2011
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ABP Objectives for ACNE

- Plan for the treatment of acne vulgaris with first-line topical medications, retinoic acid, and benzoyl peroxide (BPO)
- Know when to prescribe systemic antibiotics for acne and which antibiotics to use

Case 1

You see a 14 yo girl for a health maintenance visit. Her mother asks about treatment for her acne.
Case 1:

What is the best treatment for her acne?

1. Benzoyl peroxide gel
2. Clindamycin solution
3. Salicylic acid wash
4. Tretinoin cream
5. No treatment

Acne: Background

Acne Pathogenesis

4 key components:

Abnormal shedding of follicular keratinocytes
Increased production of sebum
Resident bacterial overgrowth
Inflammation

Driven by Androgens
Targeted Acne Therapy

- Follicular Hyperkeratosis
  - Retinoids
  - Benzoyl Peroxide (BPO)
  - Salicylic Acid
- Increased sebum
  - Retinoids
  - OCPs
  - Spironolactone
  - Isotretinoin
- P. Acnes proliferation
  - Topical Antibiotics
  - Systemic Antibiotics
  - BPO

Inflammation
- Antibiotics
- Salicylic acid
- BPO

Comedonal Acne

- Follicular Hyperkeratosis
- Increased sebum

Case 1: Comedonal Acne

- Follicular Hyperkeratosis
  - Tretinoin
- Increased sebum
  - Tretinoin

Treatment regimen:
- Tretinoin Cream QHS
Topical Retinoids

- Vitamin A derivatives
- Tretinoin, Adapalene, Tazarotene
- Potent comedolytics & anticomedogenics
- Side effects:
  - peeling and dryness
  - increased sun sensitivity

Topical Retinoids

- Tricks of the trade:
  - Start with the lowest concentration
  - Cream is less irritating than gel
  - Use a pea-sized amount for the whole face
  - Dot it all over a dry face, then rub it in
  - Start every other night, increase to nightly as tolerated
  - Apply a moisturizer under or over the medication if excessive irritation

Preadolescent Acne

- Most commonly comedonal acne in midfacial area
- Develops in association with onset of adrenarche (6-7yrs in girls, 7-8 in boys)
- 1st line: BPO
- 2nd line: infrequent retinoid

Benzoyl Peroxide

• Antimicrobial: kills bacteria via non-specific oxidation
• Weakly comedolytic and anti-inflammatory
• Side effects
  – irritation, bleaches clothing/hair, contact dermatitis
• Use the lowest strength available
  – 2.5, 5, and 10% BPO are equally effective
  – Lower strength is less irritating

Case 2

This 15-year-old girl has papules on her forehead, cheeks and nose. She gets occasional pustules. She has no scarring.

Case 2:

The MOST appropriate initial management strategy is

1. BPO gel
2. BPO/clindamycin gel
3. Tretinoin cream
4. BPO/clindamycin gel + tretinoin cream
5. Doxycycline by mouth
Inflammatory Acne

Follicular Hyperkeratosis

Increased sebum

P. Acnes proliferation

Inflammation

Case 2: Mild Comedonal/Inflammatory Acne

• Mild Inflammatory and Comedonal Acne

• Treatment plan:
  - Benzac or Duac (BPO 5% + Clinda 1%) QAM
  - Tretinoin 0.025% Cream QHS
  - 9u in 3 months

Combination Therapy for Acne

Combination therapy with a retinoid is more effective than monotherapy.

Case 3

A 15 year-old girl requests treatment for her acne. She has used BPO without significant benefit. She has early scarring.

Case 3:

The most appropriate treatment to initiate is:

1. topical BPO/clindamycin + topical tretinoin
2. topical tretinoin alone
3. oral doxycycline, topical tretinoin and BPO
4. oral minocycline, topical tretinoin and BPO
5. oral tetracycline, topical tretinoin and BPO

Case 3

- Moderate inflammatory acne
  - Treatment Regimen:
    - Doxycycline + Tretinoin + BP
    - Doxycycline + Epiduo
  - 6-8 weeks for initial improvement, 3 months to see maximal effect
Why prescribe an oral antibiotic?

- For moderate to severe inflammatory acne with potential to scar
- When acne causes severe psychosocial distress
- When inadequate improvement with topicals

Doxycycline

- First line oral antibiotic for acne
- Antimicrobial and anti-inflammatory
- Usual dose: 100mg Qday - BID
- Lower risk of serious side effects than minocycline

Doxycycline

- Side Effects:
  - Stomach Upset - take with food
  - Esophageal erosions - take >1 hr before bedtime
  - Photosensitivity - sun avoidance, sunscreen!
  - Dental staining if used in <8yo or pregnancy
Minocycline

- Use in patients with
  - Moderate/severe acne
  - Photosensitivity or high risk of sunburn if given doxycycline
- Side effects: vertigo, pigment deposition, hypersensitivity
- 6x greater risk of serious side effects than doxycycline

Why Benzoyl Peroxide?

- Resistance to antibiotics is increasing in P. acnes and other bacteria
- BPO prevents resistance to oral and topical antibiotics

How to use Benzoyl Peroxide

- Treatment regimens
  - Daily or pulse therapy (one week per month)
  - Use on face, chest, and back
  - Don’t use at same time of day as retinoid
- Tell patients that the purpose of BPO is to keep their other medicines working well
- Combo products (EpiDuo, Benzaclin, Duac, Acanya) improve adherence
Other Strategies to Prevent Antibiotic Resistance

• Don’t use oral or topical abx as monotherapy
  – Always use combination therapy!
• Prescribe BPO with antibiotics
• Avoid using oral and topical antibiotics at the same time
• Try not to switch antibiotics
• Use topical retinoids for maintenance therapy, with BPO if needed


Case 4

This 16-year-old boy has been on minocycline, tretinoin and BPO for 3 months. He has pitted scars.

Case 4:
What should you do next?
1. Wait another 3 months for the minocycline to start working
2. Change to tetracycline
3. Change to doxycycline
4. Prescribe isotretinoin yourself
5. Refer to dermatology
When to refer to dermatology

- Severe, scarring, nodulocystic acne
- Inadequate response to first-line antibiotics
- Atypical acne
- Significant parental or patient concern

What will derm do?

- Second line antibiotics
  - Cefadroxil, cepalexin
  - Septra
  - Amoxicillin
- Hormonal therapies for girls
  - Spironolactone
  - OCPs
- Isotretinoin
- Refine topical regimen
- Acne surgery
Take Home Points

• Combination retinoid based therapy is first line treatment for almost all patients with acne
• Even mild acne can have psychosocial effects - offer treatment
• Doxycycline is the first line abx for moderate acne
• Help limit antibiotic resistance - always use BPO when using another antibiotic

References

Preadolescent Acne


Antibiotic Resistance


Benzoyl Peroxide


IBD

• Murphy CL, Gilmore D, Meyers LS. Inflammatory bowel disease and acne. Am J Gastroenterol. 2009 Sep;104(9):2770. Published PMID: 19777106.
Does isotretinoin cause IBD?

1982: Isotretinoin approved by FDA

1982: “Isotretinoin-induced IBD” reported
- litigation: $12.9 million awarded to 3 patients
- result: IBD warning added to package insert

- 85 patients
- only 4 (5%) are highly probable associations


Does isotretinoin cause IBD?

2010: 2 important studies
  - 8,199 patients with IBD
  - Only UC is strongly associated with prior isotretinoin
    - OR 4.36, 95% CI 1.97-9.66
  - Increasing dose of isotretinoin associated with elevated risk of UC (20mg dose, OR 1.50)


Does isotretinoin cause IBD?

2010: 2 important studies
  - U of Manitoba IBD database 10:1 case-control
    - no significant difference
    - med before IBD: OR, 1.16, 95% CI 0.73-1.77
    - med after IBD: OR, 1.25, 95% 0.77-1.94

Tetracyclines and IBD?

  -UK Health Improvement Network database
  -Possible association between IBD and tetracyclines
  -94,487 individuals with acne
  -Any IBD, Any tetracycline: HR 1.39, 95% CI 1.02-1.90
  -Crohns-specific data
    -Minocycline: HR 1.28, 95% CI 0.72-2.30
    -Tetracycline: HR 1.61, 95% CI 0.995-2.63
    -Doxycycline: HR 2.25, 95% CI 1.27-4.00

What is the link between IBD and acne?

Acne may be a manifestation of systemic inflammatory disease

Acne in the setting of systemic inflammatory disease may require distinct treatment.

Are isotretinoin and tetracyclines associated with IBD?

- Maybe - further study is needed

- I have not changed my routine pre-abx counseling
- I take a careful family history and discuss the conflicting data on IBD and isotretinoin prior to starting isotretinoin