Acne in the Post-Adolescent Female

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DISCLOSURES
Allergan
Endymed
Inova
Leo
L’Oreal
Avita
Syneron Candela
Cynosure

Acne Vulgaris:
One of the Most Common Global Skin Diseases

- Estimated to affect 9.4% of the global population, making it the eighth most prevalent disease worldwide
- In Western populations:
  - 79–95% of the adolescent population
  - 40–54% of individuals older than 25
  - 12% of women and 3% of men by middle age
- In adults, acne may have persisted since adolescence, be late-onset, or recurrent

Prevalence of Acne Reported By Age Group

- May lead to scarring
  - Affects up to 20% of teenagers
  - Risk increases with longer acne duration
  - More common in patients with skin of colour
- May cause dyschromia
  - Persistent (post-inflammatory) erythema
  - Persistent (post-inflammatory) hyperpigmentation
- May affect self-esteem
  - Even mild disease can have notable impact in some patients

Acne Is Common, But Not Trivial
Pathophysiology

Types of lesions

<table>
<thead>
<tr>
<th>Microcomedone</th>
<th>&quot;Blocked&quot; follicle</th>
<th>Inflamed follicle</th>
<th>Nodule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Comedone</td>
<td>&quot;Blackhead&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closed Comedone</td>
<td>&quot;Whitehead&quot;</td>
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Classical View of Acne Pathophysiology\(^1-3\)

- Increased androgens/androgen sensitivity
- Increased sebum production
- Abnormal keratinocyte proliferation
- Propionibacterium acnes (P. acnes) proliferation
- Inflammation

Inflammatory lesions (Papules/pustules/nodules/cysts)

Microcomedone

Non-inflammatory lesions (Open and closed comedones)

Resolution/scarring/dyschromia

Four primary causes of acne\(^1\)

- Propionibacterium acnes (P. acnes) follicular colonisation
- Alteration in keratinisation process
- Sebum production by sebaceous gland
- Inflammation and immune response

Evolving View of Acne Pathophysiology: Inflammation Plays Key Role Throughout\(^1,2\)

- Normal-Appearing skin
- Lesions
- Resolution

Inflammation

Scar formation

Normal-appearing skin

Dyschromia

Papules, pustules, nodules

Microcomedones

Additional information:

- Brisbane Skin

Key features of acne vulgaris: A chronic inflammatory dermatosis

Closed comedones (whiteheads) and open comedones (blackheads)

MILD ACNE
• Mainly comedones, with an occasional small inflamed papule or pustule

MEDIUM ACNE
• Comedones and more numerous papules and pustules, with lesions confined to the face

MILD TO SEVERE ACNE
• Numerous comedones, papules and pustules, spreading to the upper trunk with an occasional cyst or nodule

MODERATE ACNE
• Comedones, inflammatory lesions
• Extensive involvement trunk and limb

SEVERE ACNE
• Numerous painful nodular lesions on the face, neck and upper trunk
Principles of acne treatment

- Approach is multifactorial, targeting multiple pathogenic factors:
  - Sebum production
  - Alteration of the keratinisation process
  - P. acnes
  - Inflammation

- Therapeutic goals:
  - Resolve existing lesions
  - Prevent scarring
  - Teaching to cope with psychological stress resulting from acne

Investigations

- Microbial
- Endocrinological

Microbial

- In non-responders
- In sudden flares
- Rapid nodules
- Long term antibiotic usage – oral and topical

Endocrinologic

In post-pubertal females with

- Infrequent menses
- Hirsutism
- Androgenetic alopecia
- Infertility
- PCOS
- Clitoromegaly
- Truncal obesity

Tests

- Free and Total Testosterone
- DHEA-S
- Androstenedione
- LH, FSH
- Eos estrogen, progesterone
- Sex hormone binding globulin
- prolactin
First Line Therapy - GP

- Oral antibiotics – doxy, mino, tetracyclines
- Topical antibiotics (differin, erythromycin)
- Topical benzoyl peroxide
- Topical dapsone
- Topical ad (duac, eryacne)
- OCP (yasmin, yaz)
- Spironolactone
- Diet
- Skin care regime

BASIC SKIN CARE

- Soap free cleanser
- Light moisturiser
- Light, non-comedogenic sunscreen
- Mineral makeup

Recommendations

- Low gi
- Dairy esp skim milk may exacerbate acne

Oral Antibiotics

- Tetracyclines – doxy, mino
- Erythromycin
- Bactrim
- Moderate to severe, with inflammation
- Limit to 3 months
- Use in combination with topical retinoid
- Rotation therapy
- Flare management

M.S.

- 20 year old swim teacher
- Mild acne over a few years
- Initially on Eryacne
- Then put on doxycycline for 18 months
- Sudden flare of skin
Gram Negative Folliculitis

- Long-term continuous tetracycline use
- Swabs
- Pseudomonas aeruginosa
- Consider in non-responsive acne, or acne that flares suddenly in monomorphic form

My Mx

- Pred 50
- Ciprofloxacin 500mg bd
- See back in 1wk with bloods for roac
- Roac 20/d

Topical Antibiotics

- Erythromycin
- Clindamycin/Benzyl Peroxide
- Largely for spot treatment
- Not to be used as monotherapy – risk of bacterial resistance
- Combine with BP/retinoid

Topical Dapsone 7.5% (Aczone)

ACZONE® (dapsone) 7.5% w/w Topical gel: A Product for the Topical Treatment of Acne

- Once-daily dosing\(^1\)
- Proven efficacy and tolerability\(^2,2\)
- Studied in large pivotal trials used for a topical acne drug\(^2\)
  - 4340 acne patients studied\(^2\)
  - 100% had moderate acne\(^1,2\)
- Features a pump design\(^1\)

1. ACZONE\(\text{®}\) Acne Gel 7.5%. Approved Product Information. Available from: [DPC42005-1241] [Accessed 12 May 2016].
Study objective:
• To assess the safety and efficacy of dapsone 7.5% versus vehicle control administered topically once daily for 12 weeks in patients with acne vulgaris

End Points
• Co-primary:
  - Global Acne Assessment Score (GAAS) success at week 12
  - Mean reduction in inflammatory and noninflammatory lesion counts at week 12
• Secondary:
  - Mean reduction in total lesions at week 12
  - Percent reduction at week 12 for total, inflammatory, and noninflammatory lesion counts

Patients:
• ≥ 12 years of age with 20 to 50 inflammatory lesions and 30 to 100 noninflammatory lesions on the face at screening and baseline and with a score of 3 (moderate) on the GAAS

Study Design: Two Multicenter, Randomized, Double-blind, Vehicle-controlled, Parallel-group Studies

Effect of Once-Daily Application of ACZONE® (dapsone) 7.5% w/w Topical Gel

Clinical Success: Percentage of ACZONE® (dapsone) 7.5% w/w gel Patients With GAAS of 0 or 1 at Week 12

Inflammatory Lesion Count Reduction At Week 12

Lesion Count Reductions
Comedonal (Noninflammatory) Lesion Count Reduction at Week 12¹

<table>
<thead>
<tr>
<th>Week</th>
<th>Mean Percentage Reduction</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>1</td>
<td>-10%</td>
</tr>
<tr>
<td>2</td>
<td>-20%</td>
</tr>
<tr>
<td>4</td>
<td>-40%</td>
</tr>
<tr>
<td>8</td>
<td>-60%</td>
</tr>
<tr>
<td>12</td>
<td>-70%</td>
</tr>
</tbody>
</table>

ACZONE® 7.5% w/w Topical gel (n = 2142)
Vehicle (n = 2178)

Pooled Tolerability:

- Erythema
- Scaling
- Dryness
- Stinging/Burning

Local Dermal Tolerability Assessments¹

Where Does Aczone Fit in My Practice?

- Monotherapy
- Combination therapy: eg Aczone mane, Retinoid nocte, OCP +/- Ab
- Antibiotic sparing agent
- Sensitive skin-types who cannot tolerate retinoid
- Rosacea
- Flare management
- Post-isotretion

Topical Retinoid

- Still cornerstone of first-line acne mx
- Adapalene, tretinoin, tazarotene
- Cat D/X -
- Comadonal acne
- Combination treatment
- Gradual increase in dose
- Appropriate emollients

Anti-Androgenic OCP

- Drospirenone
- Cyproterone acetate
- Well tolerated
- AFJA
- Combination therapy
- Acne antibiotics does not decrease contraception
- Monitor for 3 cycles prior to switching/ceasing

Spironolactone

- Aldosterone receptor antagonist
- Decrease T production and T binding to receptors in skin
- Well tolerated
- Diuresis, breast tenderness, menstrual irregularities, dizziness
- Hyperkalemia very rare
- 50-200mg
Second Line Therapies – When to refer?

- Unresponsive to first line agents
- Truncal acne
- Evidence of early scarring
- Darker skin types

Second Line Therapies

- Chemical peels
- Laser and light treatments
- Comadonal Extractions
- Isotretinoin

Oral Isotretinoin

- Indicated in:
  - Nodular acne and severe variants
  - Not responding to other therapy
  - Scarring + postinflammatory hyperpigmentation
  - Darker skin types – lower threshold
  - Acne excoriæ

- Pregnancy category X
- 1 month wash-out only
- Often combination on commencement to reduce flares – Abs, Pred, Aczone
- 6-12 mth Rx – longer in some, esp if Hx of PCOS
- Baseline and f/u ELFTs, Chol, TG
- Low dose routine often favoured – less SES, higher compliance, similar efficacy in most acne

PHYSICAL THERAPIES FOR ACNE
ACNE SCAR TREATMENTS

TCA CROSS

Droplets of TCA placed into deep acne scars
The aim is to raise the height of deep surgical and box car scars
Subcision

FRACTIONATED LASERS
Benefits of Fractionation

- Less discomfort
- Less downtime, quicker heal
- Ability to penetrate deeper than with fully ablative settings.
- Ability to treat darker skin types (IV-VI)
- Less complications (PIH and scarring)
- Ability to treat off the face (neck, chest, arms)

RADIOFREQUENCY

ABLATIVE LASER

ReCell
ReCell

- The ReCell Autologous Cell Harvesting Device creates an epithelial suspension which can be used to promote repigmentation and wound healing.

- FTSG or SSG processed into a non-cultured autologous suspension containing multiple skin cell phenotypes, including melanocytes.

- Immediate application to a wound bed, typically prepared using dermabrasion or ablative laser.

- Removes need for wet lab.