Handling Hair Loss in Women

AAD Women's Health Therapeutic Hotline Symposium S016

7/28/19

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I will be discussing off-label use of medications
Kaiser Permanente Northern California
- Health maintenance organization - integrated healthcare
- 8955 physicians, 150 dermatologists
- >4 million members
Handling Hair Loss in Women

- Female pattern hair loss
  - What is the workup?
  - What are the best treatments?
- Marginal alopecia
  - DDX: Alopecia areata, traction alopecia, frontal fibrosing alopecia
34 yo with gradually thinning hair

What was her treatment?

A. Topical minoxidil foam 5% QD
B. Finasteride 2.5mg QD
C. Platelet rich plasma injections x4
D. Low level laser light device
E. All of the above
Female Pattern Hair Loss

- Androgens
- Non-androgen
  - Menopause
  - Age
  - Obesity
- Extrinsic factors
  - Smoking
  - UV
  - Heat/chemicals

Reference:
- What women want - quantifying the perception of hair amount: an analysis of hair diameter and density changes with age in caucasian women.

- The impact of obesity on the folliculosebaceous unit.
Exam - close up

- Hair shaft contrast card
  - Miniaturized hairs
- Dermoscopy
  - Non-scarring alopecia
  - Diameter diversity
Workup and Counseling

- Laboratory
  - TSH, ferritin, vitamin D(?)
  - Hormonal evaluation rarely needed
    - DHEAS, F&T testosterone, prolactin
- The secret to a satisfied patient
  - Thorough history, exam, laboratory testing
  - Documentation/Photography
  - Changes are slow and gradual
  - You will not go bald

Hormonal changes in menopause: do they contribute to a 'midlife hair crisis' in women?
Female Pattern Hair Loss Treatment

- **Medical:**
  - Minoxidil 2%, 5% solution BID or 5% foam QD
  - Finasteride 1.25-5mg QD
  - Spironolactone 100-200mg QD
  - Oral Minoxidil: 1.25mg QD

- **Procedural:**
  - Hair transplants
  - Platelet rich plasma

- **Home care:**
  - Low level laser light
  - Cosmesis

- **Other?**
Finasteride: Do you use it in women? If so, at what dose?

- **Teratogenicity**
  - Pregnancy category X
  - Male fetus- genital defects: hypospadias
  - External genitalia develop between weeks 8-11

- **Dose**
  - 1.25-5mg
Female Pattern Hair Loss
## Finasteride vs Spironolactone?

<table>
<thead>
<tr>
<th>Drug</th>
<th>Finasteride</th>
<th>Spironolactone</th>
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</thead>
<tbody>
<tr>
<td>Mechanism</td>
<td>5-alpha-reductase type 2 inhibitor</td>
<td>Weak anti-androgen</td>
</tr>
<tr>
<td>Side-effects</td>
<td>Teratogenicity -X</td>
<td>Preg category C Irregular menses, dizziness/HA, GI</td>
</tr>
<tr>
<td>Hair growth</td>
<td>Strong</td>
<td>Weak</td>
</tr>
<tr>
<td>Hirsutism</td>
<td>Strong</td>
<td>Good</td>
</tr>
</tbody>
</table>
Platelet Rich Plasma

- Autologous plasma: enriched for platelets
- Mechanism: growth factors released from platelets
- Approximately 50% response
  - 3 treatments 1 month apart
- When to consider?
  - Failed medical treatment
  - Not a surgical candidate
Making the diagnosis - recognizing the pattern
- Miniaturization, diameter diversity,

Workup
- TSH, ferritin
- Hormonal workup rarely needed

Treatment options - shared decision making
- Medical
- Procedural
Marginal Alopecia

Alopecia Areata

Frontal fibrosing alopecia

Traction Alopecia
Alopecia areata “unresponsive to treatment”
Traction Alopecia - Marginal hairline

Look for the “fringe sign”
Traction alopecia- Prevention, Counseling and Treatment

- Prevention
  - Avoid painful hairstyles

- Counseling
  - Guide and inform- don’t tell

- Treatment
  - Corticosteroids- topical or intralesional
  - Oral antibiotics
  - Minoxidil 5% foam
  - Consider hair transplants
58 yo woman with a “receding hairline”

- Alopecia areata treatment <50%
  - Intraleional/topical corticosteroids
  - Topical minoxidil
  - Topical immunotherapy: dpcp/squaric acid
  - Short contact anthralin

Clinical Efficacy of Diphenylcyclopropenone in Alopecia Areata: Retrospective Data Analysis of 50 Patients.
Chiang KS,1,2 Messinova NA,1 Pilant MP,1 Benzfeldt WF.1

Efficacy and safety of diphenylcyclopropenone alone or in combination with anthralin in the treatment of chronic extensive alopecia areata: a retrospective case series.
Durdulu M1, Cican C2, Baha M3, Sevin C3.
Alopecia Areata - the dawn of a new era

- Critical role of janus kinase inflammatory pathway (JAK)
- Targeted treatment with JAK inhibitors
- How to incorporate in therapeutic ladder for AA?
  - Extensive
  - Unresponsive to treatment

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**Alopecia areata is driven by cytotoxic T lymphocytes and is reversed by JAK inhibition.**

JAK inhibitors for AA

- FDA advisory: risk of PE and death with higher dose tofacitinib in RA patients
- Hair loss recurrent when medication stopped or decreased
- Clinical trials of JAK inhibitors ongoing
  - clinicaltrials.gov
Alopecia Areata Unresponsive to Treatment...


*Postmenopausal frontal fibrosing alopecia. Scarring alopecia in a pattern distribution*

Kossard S1.
Frontal Fibrosing Alopecia: An Emerging Epidemic

- Increased incidence of FFA at 4 tertiary hair centers 2000-2017

Hormones ✅
Environment ✅
Genetics

Sebaceous Gland Hypothesis

Medline Trend Search for Selected Cicatrical Alopecias


Frontal Fibrosing Alopecia: An Emerging Epidemic.
Mirmiran P¹,²,³, Tosti A⁴, Goldberg L⁵, Whiting D⁶, Sotoodlan R⁷.
Molecular evidence- Sebaceous Gland Dysfunction

- Asebia mouse
- Loss of PPAR gamma *
- Mitochondrial dysfunction**


**Subbaiah et al. Mitochondrial Dysfunction Present Early and Trigger the Pathogenic Sequelae in Cicatricial Alopecia. JID 133, S260-S302 (May 2013).
FFA- Environmental Triggers?

- Sunscreens?
  - Case control use of sunscreens/facial moisturizers higher in FFA group
  - First cases reported in Australia

- Nanoparticles?
  - Detection of titanium nanoparticles in FFA and controls
FFA- Genetic Triggers?

- Multiple reports of familial FFA
- GWAS
  - 4 genomic loci identified
  - Xenobiotic
  - Hormone processing
  - Innate and adaptive immune response pathways

*Genome-wide association study in frontal fibrosing alopecia identifies four susceptibility loci including HLA-B*07:02.*

**FFA Treatment**

- **Anti-inflammatory**
  - Tier 1: Intralesionals (5 mg/ml tac), topical corticosteroids
  - Tier 2: Antibiotics (doxycycline 100mg bid), antimalarials (hydroxychloroquine 200mg bid), ppar gamma agonists (pioglitazone 15mg qd), oral retinoids

- **Non-specific hair growth promotion**
  - Topical minoxidil, 5-alpha- reductase inhibitors (finasteride, dutasteride)

- **Counseling**
  - Careful selection of sunscreens/ facial moisturizers

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*Cicatricial Alopecia an Approach to Diagnosis and Management, Springer 2011*
Initial visit
3 month followup
6 months
pioglitazone 15mg qd

• PPAR gamma agonist
• Can be used in non-diabetics
• Side-effects include weight gain, peripheral edema, bladder CA >1 year
• 1/3 remission, 1/3 responder, 1/3 non-responder

Lichen planopilaris treated with a peroxisome proliferator-activated receptor gamma agonist.

Mehraoui P, Kanik P
Summary

- Marginal alopecias:
  - Traction alopecia, alopecia areata, frontal fibrosing alopecia

- Traction alopecia
  - Fringe sign, hair casts

- Alopecia areata
  - Combination treatments
  - JAK inhibitors

- Frontal fibrosing alopecia
  - Increased incidence worldwide
  - Sebaceous gland dysfunction
  - Hormones, environment, genetics
Interesting case or question?

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THANK YOU!