Medically Maximizing Male and Female Hair Loss

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Objectives

- By the end of the lecture, the participant will be able to
- Review an evidence based patient centered (EBPC) approach to the medical treatment of male and female pattern hair loss
- Understand the limitations and side effects of these treatments

Disclosures/Conflicts

- None

So how to we medically maximize treatment?

- Use an EBPC Approach
- Aggressively Fight Inflammation
- Support Nutrition

What are the main treatments for Male and Female Pattern Hair Loss?

<table>
<thead>
<tr>
<th>MALES</th>
<th>FEMALES</th>
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<tbody>
<tr>
<td>Minoxidil</td>
<td>Minoxidil</td>
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<tr>
<td>Anti-androgens</td>
<td>Anti-androgens</td>
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<tr>
<td>Low level laser</td>
<td>Low level laser</td>
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<td>PRP</td>
<td>PRP</td>
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Minoxidil

THE FUNDAMENTALS
Minoxidil – approved at 2% and 5%

Prescribing Minoxidil

- **Dose**
  - 1 mL for 2% solution (males and females twice daily)
  - 1 mL for 5% solution (males twice daily and females once daily)
  - 1/2 cap for foam (males twice daily and females once daily)

- **Side effects**
  - Itching with solution (propylene glycol)
  - Shedding in the first 6-8 weeks
  - Headaches, dizziness, heart palpitations

Who responds to minoxidil?

- 30% get cosmetically significant improvements

- Who benefits from minoxidil?
  - Shorter duration of hair loss and smaller area of thinning
  - Larger numbers of non-vellus miniaturized hairs
  - In males, helps slightly more in crown than temples, but still helps in the temples

Who is going to benefit from minoxidil?

Minoxidil

THE OFF LABEL USES

Methods of getting more minoxidil to the follicle

- **Minoxidil + Dermarolling or Dermastamp**
  - Compounded 7.5% Minoxidil
  - 5% Minoxidil + 1.5% - 5% azelaic acid + 0.01% tretinoin
  - Oral minoxidil 0.25 mg to 5 mg

Shin HS et al. Efficacy of 5% minoxidil versus combined 5% minoxidil and 0.01% tretinoin for male pattern hair loss: a randomized, double-blind, comparative clinical trial. *Am J Clin Dermatol* 2007.
**Finasteride**

**THE FUNDAMENTALS**

- Approved 1997 at 1 mg for treating male balding
  - Stops hair loss / improves hair density in 90% of males
  - Works better in crown than front but still helps in front
- Not FDA approved for Women (Use is Entirely Off Label)
  - 2.5 mg and 5 mg are the doses that are effective in women

**Oral Minoxidil Side Effects (0.25–2.5 mg)**

- Headaches, dizziness (1-2%)
- Ankle Swelling (1-2%)
- Increased hair on face (15-25%)
- Rashes and hives (1%)


**Finasteride: Side effects in Men**

- Sexual dysfunction < 2%
- Mood changes < 1%
- Gynecomastia and breast pain (1-25%)
- Reduction in sperm count (by 30%)
- Testicular pain
- Others: PSA etc

**Finasteride: Side effects in Women**

- Precise risk estimates for sexual dysfunction risks are not clear but may be as high as 10% reduced libido
- Breast enlargement and breast pain
- Weight gain
- Muscle soreness
- Liver enzyme elevation
- Mood changes
- **Teratogenicity**

**Amory JK et al. J Clin Endo Metabol 2007**
**Finasteride: How well does it work?**

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Post Menopausal Women</th>
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<tr>
<td>Improvement in Hair Density</td>
<td>40 %</td>
<td>85 %</td>
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**Do you recognized these terms? The New Finasteride Terminology**

- **Persistent side effects**
- **Post finasteride syndrome (PFS)**

**Can sexual side effects be persistent or permanent?**

Early trials did not show

- Showed sexual side effects often resolved while continuing the drug or after discontinuing the medication

Some studies starting 2010 suggested this could occur

- Irwig MS. J Sex Med 2011 and 2012
- Mella et al Arch Dermatol 2010
- Ganzer et al J Mens Health 2014

**Persistent side effects**

Side effects lasting more than 3 months after stopping the drug

PFS refers to a collection of sexual, neurological and physical side effects that are hypothesized to persist in some patients who have taken finasteride.
In 2012, US FDA changed the finasteride labeling to include the possibility of multiple persistent sexual problems.

**FDA Label Changes for Finasteride**

**Can we reduce side effects from finasteride**

... and still obtain clinical benefit?

**Off label finasteride treatment options to potentially reduce side effects**

**OPTION 1: Use Lower Finasteride Doses**
- 0.2 mg per day can lower DHT levels by 60-75%
- Start 0.25 to 0.5 mg daily or 1 mg qod

**OPTION 2: Consider Topical Finasteride**
- 0.25% topical finasteride solution inhibited DHT by 68%-75% which was similar to 1 mg oral.

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**Dutasteride**

- Not approved by US FDA for hair loss
- Mechanism of Action
  - Inhibits 5α-reductase type 1 and 2
  - Lowers serum DHT by 90% vs 70% for finasteride
  - Lower scalp DHT 55% by vs 38% with finasteride
- 0.5 mg daily is typical dosing

**Using Dutasteride in Real Practice**

**OPTION 1:**
Switch to dutasteride if patient not responding to finasteride

**OPTION 2:**
Continue finasteride + add 0.5 mg dutasteride on weekend

Clark RV. J Clin Endo Metabol 2004


Boyapati A and Sinclair R. Australas J Dermatol 2013
### Spironolactone
- Used at doses 50 mg - 200 mg in Female AGA only
- Stops loss in 40 % and may increase hair density in 40 %
- Not to be used in pregnancy
- Side effects:
  - Dizziness
  - Mood changes
  - Decreased libido
  - Breast tenderness
  - Irregular periods
  - Fatigue


### Dutasteride in Women
- Limited studies have been done
- Seems more effective than finasteride in women but more side effects

Boersma et al. The effectiveness of finasteride and dutasteride used for 3 years in women with androgenetic alopecia. Indian J Dermatol Venereol Leprol 2014; 80: 521-5

### Considerations
**How to start?**
- **Where to start?**
- **What to start?**

Use an EBPC Approach

### EB
(evidence based considerations)

**Practical Approach to Male Pattern Hair Loss** - An EBPC Approach

**Step 1:**
- Understand patient’s views on his hair, overall risk tolerance and his views on hair transplant surgery

**Step 2:**
- Encourage Smoking Cessation, and Encourage use of Anti-dandruff shampoos +/- topical steroid routine

**Step 3:**
- Consider Blood Tests

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**Hair Loss involving the mid-scalp and crown**

Does my patient want to use finasteride?

- **No**
  - Consider topical (or oral Minoxidil)
  - Add Laser or PRP in 6 months
  - Consider Saw palmetto or PSO or Topical Rosemary

- **Yes**
  - Dose per Risks Tolerance + History
    - Standard 1 mg
    - Topical FIN
    - Low dose oral FIN
  - Consider Add or Switch to Dutasteride

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**Practical Approach to Female Pattern Hair Loss** (Premenopausal Women)

- Consider topical (or oral Minoxidil)
- Add Laser or PRP in 6 months
- Consider Saw palmetto or PSO or Topical Rosemary
- Consider Add or Switch to Dutasteride
Practical Approach to Female Pattern Hair Loss

(Post menopausal Women)

An EBPC Approach

Step 1:
- Understand patient's views on her hair, risk tolerance, plans for pregnancies

Step 2:
- Encourage Smoking Cessation, and Encourage use of Anti-dandruff shampoos +/- topical steroid routine

Step 3:
- Consider Blood tests
- Aggressively stop ALL triggers of telogen effluvium

Step 4: Does my patient want to use topical minoxidil?
- No
  - Consider Finasteride 2.5 mg
  - Add Laser or PRP in 6-9 months
  - Consider Dutasteride and Low Dose Oral Minoxidil
- Yes
  - Start 5% foam daily
  - Consider spironolactone +/- OCP
  - Dermaroll? Retinoid? Oral minoxidil?
  - Add Laser or PRP in 6 months

How do we know if it’s working?
- Patients started on 1 treatment at at time
- Advised to expect results in 6-9 months
- Tell them not to give up
- Take photos
So how to we medically maximize treatment?

- Use what we already know works
- Aggressively Fight Inflammation
- Support Nutrition

INFLAMMATION

What causes inflammation in the scalp?

- Androgenetic Alopecia
- Seborrheic dermatitis
- Smoking
- Psoriasis
- Allergic and irritant Contact Dermatitis
- Traction Alopecia

- Aggressively Fight Inflammation

Suppressing Inflammation in AGA: Ketoconazole

- Mechanism of benefit unclear
  - May affect not only Malassezia but impair T cells in the balding area and may reduce DHT
- 2 main studies showing improvement
  1. Pierard Franchimont et al Dermatology 1998
     - 21 m study: 2 % minoxidil vs 2 % ketoconazole
     - Ketoconazole similar to minoxidil
     - 3 of 6 males benefit

Case Examples
**Case 1**
- 24 year old male with AGA and moderate SD
- 3 year use of minoxidil
- Initiated treatment with
  - Three times weekly shampooing routine
  - Monday: Ketoconazole (3 minutes)
  - Wednesday: Clobetasol (15 minutes)
  - Friday Ciclopixrolamine (5 minutes)

**Reducing Inflammation - 1**
- 5 % Minoxidil /0.2 % Tac
  - Minoxidil
  - Triamcinolone acetonide
  - Glycerin 85 %
  - Water 20 %
  - Ethanol

**Reducing Inflammation - 2**
- Betamethasone foam/lotion
- Clobetasol foam/lotion/shampoos

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<th>MON</th>
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<td>AM</td>
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**Case 2 - (32 M)**
- Current treatments
  - Minoxidil 5% foam once to twice daily
  - Finasteride 1 mg daily
- New plan
  - Continue finasteride 1 mg
  - Add BMV foam twice weekly for 6 months then once weekly
  - Three times weekly shampooing routine
    - Monday: Ketoconazole (3 minutes)
    - Wednesday: Zinc pyrithione (3 times)
    - Friday Ciclopixrolamine (5 minutes)

**So how to we medically maximize treatment?**
- Use what we already know works
- Aggressively Fight Inflammation
- Support Nutrition

**Case 3 (52 F)**
- Past treatments
  - Supplements
  - Minoxidil 5% foam (inconvenient)
- Current treatments
  - Low level laser (Capillus 272) Finasteride 2.5 mg
- New plan
  - Continue laser and finasteride
  - Started on oral minoxidil 0.5 mg and increased to 1 mg daily after 3 months
Case 4 (28 M)
- Past treatments
  - none
- Current treatments
  - Minoxidil 5% foam x 18 months
- New plan
  - Add demaroller 0.5 mm starting 3x per week 1 hr before minoxidil

Case 5: 28 year old male
- Current treatment
  - Topical minoxidil 5% twice daily
  - Slowing but not stopping hair loss
- New plan
  - Continue topical minoxidil 5% twice daily
  - Add topical liposomal 2.5% finasteride

Case 6 (56 F)
- Previous treatments
  - LLLT (did not help)
  - PRP (did not help)
  - Topical Minoxidil (did not help)
  - Finasteride (weight gain)
- New plan
  - Oral minoxidil 0.5 mg with 50 mg spironolactone

Case 7
- 25 year old male
- Current treatments
  - Minoxidil 5% foam once to twice daily
- New plan
  - Continue topical minoxidil
  - Add PRP treatments

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