Botanical Treatments for Hair Loss

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Objectives

- Recognize limitations of existing FDA-approved therapies for hair growth
- Discuss the mechanism behind plant-based options for hair growth
- Identify plant ingredients that have been shown to increase hair growth
Disclosures

No relevant disclosures
Trend toward Natural Alternatives

- Topical Minoxidil
  - Risk of contact dermatitis
  - Head ache, dizziness, CV contraindications
- Oral Finasteride
  - Sexual side effects
  - Mood changes
  - Breast enlargement
- Hair Transplantation
Plant-based 5-AR Inhibitors

- Identified as natural therapies for benign prostatic hypertrophy (BPH)

- Block conversion of testosterone to DHT
  - Pumpkin Seed Oil
  - Saw Palmetto
  - Sophora flavens
  - Green tea (EGCG)
Pumpkin Seed Oil

- Randomized, double-blind placebo-controlled trial
- Treatment group (n=37) : 400mg Octa Sabal Plus®
- Placebo group (n=39)
- Hair counts recorded with 60x lens in areas of greatest balding
- At 12 and 24 weeks, hair counts increased by 30 & 40% from baseline (tx group) vs. 5 & 10% (placebo)

Cho et al. Effect of PSO on hair growth in men with AGA…. Evid Based Complement Alternat Med. Epub 2014; April 23
Pumpkin Seed Oil

Limitations of Study:
- Without scalp tattooing, some would consider the hair counts unreliable
- Did not include effect on frontal AGA
- Dosing guidelines unclear
- Future studies: role in FPHL, risk of teratogenicity?

Verma H. Comment on “Effect of PSO on hair growth in men with AGA....” Evid Based Complement Alternat Med. Epub 2014; April 23
Saw Palmetto

- Open-label study enrolled 100 male pts with mild-moderate AGA
- Treatment group received 320mg *Serenoa repens* daily x 24 mos
- 2nd group received finasteride 1mg daily x 24 mos
- 20-70x views taken with Trichoscan and assessed on a 7 point scale (-3 to +3)

Saw Palmetto

Results:

- 38% of SP patients had increased hair growth vs. 68% of men on finasteride
- Finasteride worked well in front & vertex
- Serenoa worked primarily in vertex

Saw Palmetto

Limitations of Study:

- Unclear whether the observers were independent or blinded….author could not be reached via email
- No clinical photos provided
- Dosing guidelines unclear
- Future studies: role in FPHL, risk of teratogenicity?
Sophora flavescens

- Plant based 5-AR used in Chinese medicine
- Extract applied to backs of C57BL/6 mice

**Results:**
- Anagen cycle was initiated earlier than in controls
- Induced mRNA levels of growth factors (ILGF & KGF)

**Limitations:**
- No clinical evidence is available

Green Tea Extract

- Identified as a 5-AR inhibitor in 1995
- Limited efficacy in native state (EGCG)
- Requires addition of palmitic acid (14C)

- NO CLINICAL DATA EXISTS
- SCARY REPORTS OF LIVER TOXICITY*
  - Europe - Inneov masa capilar®

Topical Application of Polyphenols (Apple extract, Barley, Grapeseed)

- Scavenge free radicals
- Reduce oxidative stress from UVR and pollution
- Contain PROCYANIDINS
  - Counteract negative regulators of hair growth like TGF-β and protein kinase C

-Kamimura A. et al. Procyanidin B-3, isolated from barley and identified as a hair-growth stimulant, has the potential to counteract inhibitory regulation by TGF-β1. Exper Derm. 2002;11:532-41.
Procyanidin B-2

- Double-blind, placebo-controlled study
- Enrolled 29 male patients with AGA (Ogata scale specific to Japanese males)
  - Treatment group: 19 male subjects with AGA
  - Control group: 10 males, matched by age and degree baldness
- Treatment group applied 1% tonic to scalps x 4mo
- 1cm round area clipped and measured
- 78.9% of tx group – significant increase in total number of hairs
- 30% of placebo group had any increase

Procyanidins B-1, B-2, C-1

- Double-blind, placebo-controlled study
- Enrolled 43 male patients with AGA (Ogata scale specific to Japanese males)
  - Treatment group: 21 male subjects with AGA
  - Control group: 22 males, matched by age and degree baldness
- Treatment group applied apple procyanidins to scalps
  - .5cm² round area clipped and measured
- Results: at 12 months, tx group had a significant increase in hair count above baseline

Ginseng

- Active ingredient is ‘saponins’
- Anti-oxidant and anti-apoptotic effects
- Data: tests effect on cultured mouse vibrissal follicles
- Red ginseng superior to white ginseng*
- Red ginseng protects against gentamycin-induced hearing loss in rats**


Korean Red Ginseng Extract

- Human clinical trial: 3000 mg/day PO for 24 weeks
- Treatment group: 14 males, 6 females with AGA
- Matched with 14 males, 6 females in control groups
- Results assessed with Folliscope
- “Effectively increased hair density and thickness”

Japanese study of C3H mice
- Backs shaved at baseline
  - 6 mice treated with 70% ethanolic extract
  - 6 mice in control group
Followed for 35 days
- Treatment group: significantly faster regrowth (p<.05)

Biotin

- Infants born with biotin deficiency can develop patchy alopecia
- Correction of this regrew hair
  - Prolonged intake of avidin (from egg white)
  - Parenteral nutrition without biotin
- BUT no studies have been done to show that taking biotin above normal levels grows hair