Vitiligo: Treatment Update

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Disclosures

- I have no conflicts of interest to disclose.
Vitiligo

- Acquired disorder of depigmentation
- Due to loss of melanocytes
- Mucous membranes, inner ear, eye, and leptomeninges may also be involved
- Prevalence: 0.5-4% of the world’s population
- All ages, races and ethnicities affected
Localized Vitiligo

- Also called focal vitiligo
- Confined to a limited, non-dermatomal area

Courtesy of Dr. Amit Pandya
Segmental Vitiligo

- Quasi-dermatomal or quasi-Blaschkoid distribution
- Unilateral
- Early onset, rapid stabilization
- Responds poorly to medical tx
- Considered a good indication for surgical treatment

Courtesy of Dr. Amit Pandya

Park JH et al., Ann Dermatol 2014; 26:61
Tsuchiyama K et al., Dermatology 2016; 232:237
Acrofacial Vitiligo

• Involvement of the perioral/periorificial regions and fingers/toes
• No truncal lesions
Generalized Vitiligo

- Widespread
- Symmetric
- Common
- Often occurs at sites of trauma, friction, pressure
- Can evolve over time
Universal vitiligo

• Affects 80%-90% of body surface

Courtesy of Dr. Amit Pandya
Pathogenesis

• Likely combination of oxidative stress and autoimmunity in a setting of genetic predisposition
• T-cell cytotoxicity through the IFN-γ/CXCL10 pathway likely drives vitiligo autoimmunity
Psychosocial Impact

- Psychological disorders: 30%
- Sexual difficulties: 20%
- Anxiety: 19%
- Depression (all types): 55%

- Consider behavioral health consultation and support group recommendation

Vitiligo Management

• Sunscreens
• Camouflage
• Topical therapies
• Systemic therapy
• Phototherapy

• Depigmentation
• Surgery
  - Punch transplants
  - Blister grafting
  - Melanocyte transplants
Sunscreen

- Prevents sunburn
- Decreases contrast
- Decreases chance for Koebnerization

Ezzedine K et al., Lancet, 2015; 386:74-84
Cosmetics/camouflage

- Self tanners
- Conventional make-up (Clinique-Even better)
- Dermablend (Ulta, Dillard's, Macy’s)
- Cover FX (Sephora)
- Zanderm
- Microskin (in NY and has traveling clinics in CA, TX, FL and IL)
- www.dermstore.com cover fx, dermablend
Chromelini Complexion Blends

Cosmetically darkens unpigmented skin to produce an even complexion.

- Waterproof color
- Coloration is easily maintained
- One product for all skin tones
- Use alone, or as base color under non-waterproof blending cosmetics
<table>
<thead>
<tr>
<th>Color</th>
<th>Linen</th>
<th>Alabaster</th>
<th>Buff</th>
<th>Cream Whip</th>
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<td>Golden</td>
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Tattooing
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<tr>
<th>Camouflaging Agent</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Best For</th>
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<tr>
<td>Cosmetic Tattoo</td>
<td>Permanent Water proof</td>
<td>Technical skill required</td>
<td>Generally not recommended</td>
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<td>Reports of adverse events Pigment migration Color mismatch with tanning</td>
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<tr>
<td>Cosmetics</td>
<td>Customizable Affordable Widely available</td>
<td>Not water proof</td>
<td>Limited vitiligo</td>
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<tr>
<td>Cosmetic Camouflage</td>
<td>More opaque coverage Simulates complexion</td>
<td>Need for consultation Cost Need for repeated application</td>
<td>Facial patches</td>
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<tr>
<td>Dihydroxyacetone</td>
<td>Water proof Affordable Customizable May last several days</td>
<td>Difficulty in matching skin tone</td>
<td>Large patches of vitiligo Face Areas of friction</td>
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<tr>
<td>Microskin</td>
<td>Water proof May last several days Simulates complexion Opaque coverage</td>
<td>Cost Need for consultation Equipment</td>
<td>Large patches of vitiligo Face Areas of friction</td>
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Topical corticosteroids

- Commonly first-line therapy for limited disease
- Monotherapy in localized disease supported in some RCTs
- Light therapy more effective in combination with topical steroids than monotherapy in most studies
- Must consider side effects especially with use on the face/delicate areas and in children

Whitton ME et al. Cochrane Database Syst Rev. 2015 Feb 24;(2)
Monotherapy with Betamethasone cream twice daily from Feb-July

12/29/15  7/14/16
Topical calcineurin inhibitors

- Have been reported to show a good therapeutic efficacy without corticosteroid side effects
- Immunomodulatory effect- inhibits multiple pro-inflammatory cytokines including interferon-γ

Gutfreund K et al. Postepy Dermatol Alerogl 2013 June;30(3): 165-169
Topical calcineurin inhibitors

- RCT comparing
  - Tacrolimus 0.1% ointment
  - Clobetasol 0.05% ointment
  - Placebo ointment
- 100 children divided into facial and non-facial vitiligo groups
- 6 month duration of treatment

Topical calcineurin inhibitors

- Facial group with equal efficacy (58% improvement) with clobetasol or tacrolimus
- Greater efficacy with clobetasol (39%) vs tacrolimus (23%) in non-facial group
- No significant adverse effects
- Conclusions: Tacrolimus and clobetasol offer similar efficacy in pediatric vitiligo and are both effective treatments

Combination therapies

- Combining tacrolimus with NBUVB and excimer is more efficacious than NBUVB or laser therapy alone.
- Pimecrolimus plus excimer has been reported to have greater efficacy vs. excimer alone.

Clobetasol x 4 weeks + NBUVB, then pimecrolimus + NBUVB

April 2016

June 2016
VITAMIN D₃ ANALOGUES

- Benefits are controversial in vitiligo treatment
- Combination with NBUVB
  - synergistic effect of addition of calcipotriol to NBUVB is still debatable in vitiligo tx.

VITAMIN D₃ ANALOGUES

- Randomized trial comparing calcipotriol ointment 0.005% and betamethasone dipropionate 0.05% cream, given alone or in combination
- 49 patients with localized vitiligo

VITAMIN D₃ ANALOGUES

- Combination group found to have superior efficacy and safety compared to either therapy alone
- Combination had earlier and more lasting pigmentation
- Betamethasone and calcipotriol used individually were equally effective

- Conclusions: Quicker repigmentation and fewer side effects occur with combination of betamethasone and calcipotriol
Oral corticosteroids

- Typically used for halting rapidly progressing vitiligo
- Limited data in the literature supporting stopping disease progression
- Methylprednisolone used in oral minipulse (OMP) therapy in childhood progressive vitiligo has shown efficacy
- Not effective in repigmenting stable disease


Afamelanotide

- Melanocyte stimulating hormone (MSH) stimulates melanocyte reproduction and growth
- Synthetic analogue of α-MSH that binds with the melanocortin-1 receptor (MC1R).
- Increases melanocyte proliferation and stimulates pigmentation but cannot effect differentiation of stem cells
Afamelanotide

- Randomized controlled multicenter trial comparing combination of afamelanotide implant and NB UVB phototherapy to NB UVB monotherapy
- 55 adult nonsegmental vitiligo patients randomized to NB UVB alone or combination therapy x 6 months

Lim HW et al. JAMA Dermatol. 2015 Jan;151(1):42-50
Afamelanotide

- Combination group had superior response compared to NBUVB alone
- Fitzpatrick types IV-VI and lesions on the face and UE responded quicker in the combination arm
- Afamelanotide was tolerated well overall
Narrow Band UVB (311 nm)

- Generalized vitiligo
- NB-UVB twice weekly x 1 yr
  - > 75% repigmentation in 63%
- Safe for children and pregnancy

Westerhof W et al. Arch Dermatol.1997;133:1525
Excimer (308 nm)

- Targeted phototherapy
- Face/localized vitiligo
- Short duration of therapy
  - Treatment twice per week x 6 months
  - >75% repigmentation in 49% of patients
- No hyperpigmentation of non-involved skin

Esposito M. Clin Exp Dermatol
2004;29:133-37
Janus kinase inhibitors (JAK)

- JAK enzyme inhibitors act as immunosuppressors
- Tofacitinib - JAK 1/3 inhibitor
- Ruxolitinib - JAK 1/2 inhibitor
Tofacitinib

- FDA approved for rheumatoid arthritis and off label use for alopecia universalis, plaque psoriasis
- Costs $2500/mo

- Woman with generalized vitiligo (BSA 10%) treated with 5 months of PO tofacitinib 5 mg QOD x 3 weeks, then daily
  - Substantial repigmentation at 5 months
  - Significant repigmentation of hands - BSA decreased to 5%

Craiglow BG et al. JAMA Dermatol. 2015 Oct;151(10):1110-1112
Ruxolitinib

- FDA approved for myelofibrosis and polycythemia vera
- Costs $10,600/mo with coupon

- 35 yo man with widespread vitiligo including > 99% facial depigmentation with concurrent alopecia areata
  - Gained 51% repigmentation of his face with ruxolitinib 20 mg BID x 20 weeks
  - 12 weeks after discontinuing ruxolitinib, much of the regained pigment had regressed

Depigmentation

- Extensive vitiligo (>50% BSA)
- Disfiguring facial involvement
- Racial considerations
- Q-switched ruby 755 nm alone or with methoxyphenol
- Cryotherapy

Monobenzozyl ether of hydroquinone (MBEH)-20-40%
- Takes 1-4 mo or may take up to 1-2 yrs and not always successful
- allergic contact dermatitis
- satellite depigmentation
- generally irreversible


Surgical modalities for stable vitiligo (6-24 mo)

- Vitiligo subtype: Segmental > Focal > Generalized > Acrofacial
- Tissue grafting
  - Mini-punch grafts
  - Thin split-thickness grafts
  - Suction blister grafts
- Cellular grafting
  - Autologous pure melanocytes
  - cultured melanocyte/epidermal sheet transplantation
  - Non-cultured methods
    - Melanocyte Keratinocyte Transplantation Procedure (MKTP)
Vitiligo Support

- Vitiligo Working Group
- National Vitiligo Foundation
- American Vitiligo Research Foundation
- Vitiligo Support and Awareness Foundation
- Vitiligo Bond
- Vitiligo Support International
- VITFriends Vitiligo Support Group
- American Academy of Dermatology
Vitiligo Support

- Boston, MA: http://www.vitfriends.com/
- New York City, NY: https://www.facebook.com/nyvitiligo/
- Detroit, MI: https://www.facebook.com/MI.vitiligo
- Dallas, TX: http://dfwvsg.org/