Hi-Light trial for the treatment of vitiligo

Dr Viktoria Eleftheriadou MD PhD
Centre of Evidence Based Dermatology
University of Nottingham
23/05/2013
Home Intervention of Light therapy for the treatment of vitiligo
Hi-Light trial for vitiligo

- Background
- Aims and objectives
- Methods
- Results
- Conclusions
Background: Why home phototherapy?

- Vitiligo Priority Setting Partnership
- Cochrane Systematic review 2010
- New EDF guidelines for vitiligo
- Early treatment more effective?
Vitiligo PSP

- 1st PSP in Dermatology
- 1600 questions by 461 participants
- Top 10 areas for research identified

Top 10 treatment uncertainties for vitiligo

1. How effective are **systemic immunosuppressants** in treating vitiligo?
2. How much do **psychological interventions** help people with vitiligo?
3. Which treatment is more effective for vitiligo: **light therapy** or **calcineurin inhibitors** (e.g. tacrolimus)?
4. How effective is **UVB light therapy when combined with creams or ointments** in treating vitiligo?
5. What role might **gene therapy** play in the treatment of vitiligo?
6. How effective are **hormones or hormone related substances that stimulate pigment cells** (MSH analogues, afamelanotide) in treating vitiligo?
7. Which treatment is more effective for vitiligo: **calcineurin inhibitors** or **steroid creams/ointments**?
8. Which treatment is more effective for vitiligo: **steroid creams/ointments or light therapy**?
9. How effective is the **addition of psychological interventions to patients using cosmetic camouflage** for improving their quality of life?
10. How effective is **pseudocatalase cream** (combined with brief exposure to UVB light) in treating vitiligo?
Cochrane systematic review

- No firm clinical recommendations can be made
- Combination treatments with light seems to be promising

Whitton M, Pinart M, Batchelor et al. Interventions for vitiligo. Cochrane Database of Systematic Reviews 2010, Issue 1
EDF guidelines: SV & limited NSV

- **First line**: corticosteroids, calcineurin inhibitors
- **Second line**: Localised NB-UVB therapy
- **Third line**: surgical techniques if stable
Early treatment more effective?


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Aims and objectives

Feasibility of conducting a large RCT:
- Recruitment strategies
- Educational package on home phototherapy/adherence to treatment
- Test outcomes for the main trial
- Output of the devices pre/post trial
Hand-held phototherapy units
Hi-Light trial for vitiligo

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Home Intervention of Light therapy for vitiligo

Multi-centre, pilot, double-blind, placebo controlled trial on hand-held NB-UVB home phototherapy for the treatment of vitiligo
Methods

- 2 recruitment centres: Nottingham (QMC) and Leicester (LRI)
- GP practices as Patients Identification Centres
- 3-arm parallel trial: Group A-active Dermfix, Group B-active Waldmann, Group C-placebo Dermfix
- Participants, investigators, independent outcome assessor: blinded
- 4 months treatment duration
Eligibility

Inclusion criteria

- Vitiligo confirmed by a dermatologist (less than 25% of body surface area)
- Children (aged ≥ 5 years) & adults
- No therapy for vitiligo in the previous 2 weeks and no concurrent treatment during the trial
- Spreading and stable vitiligo
- Able to give informed consent

Exclusion criteria

- Segmental vitiligo
- Universal vitiligo
- Previous history of skin cancer
- Recent or concurrent radiotherapy, photosensitivity
- Immunosuppressive or photosensitive drugs
- Pregnant or lactating women
- Major medical co-morbidities
- Vitiligo limited to the genitalia only
Trial configuration (1)

Approach letter sent from clinical team/patient identification centres
Participant returned reply slip to co-ordinating centre

Direct advertising
Participant contacted co-ordinating centre expressing an interest in the trial

Age appropriate Participant Info Sheets sent

Telephone call
Discuss provisional eligibility for the trial; arrange clinic appointment; send participant information sheets (if not already received)

Screening/ Randomisation/Educational visit
- Explanation / consent
- Confirmation of diagnosis
- Eligibility check
- MED test (consent for UVB treatment)
- Data collection, pictures taken
- Education on use of home devices / completion of diary / monitoring of side-effects

Baseline
MED test results
Start date and treatment regimen confirmation
Trial configuration (2)

Group A (active Dermfix)
- Telephone call: at 1 week and 2 weeks
- Face to face visit at 8 weeks: Outcomes assessment
- Telephone call: at 12 weeks
- Final face to face visit at 16 weeks: photographs taken, lesions measured. Outcomes assessed.

Group B (active Waldmann)
- Telephone call: at 1 week and 2 weeks
- Face to face visit at 8 weeks: Outcomes assessment
- Telephone call: at 12 weeks
- Final face to face visit at 16 weeks: photographs taken, lesions measured. Outcomes assessed.

Group C (placebo Dermfix)
- Telephone call: at 1 week and 2 weeks
- Face to face visit at 8 weeks: Outcomes assessment
- Telephone call: at 12 weeks
- Final face to face visit at 16 weeks: photographs taken, lesions measured. Outcomes assessed.
# Treatment schedule

<table>
<thead>
<tr>
<th>Skin Type</th>
<th>Starting time</th>
<th>Exposure time +20% of treatment 1</th>
<th>Exposure time - 20% of treatment 1</th>
<th>Maximum exposure time (MET)</th>
<th>Total duration</th>
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<tbody>
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<td>I</td>
<td>15 sec</td>
<td>+3 seconds</td>
<td>-3 seconds</td>
<td>3 min</td>
<td>4 months</td>
</tr>
<tr>
<td>II</td>
<td>20 sec</td>
<td>+4 seconds</td>
<td>-4 seconds</td>
<td>4 min</td>
<td>4 months</td>
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<tr>
<td>III</td>
<td>25 sec</td>
<td>+5 seconds</td>
<td>-5 seconds</td>
<td>5 min</td>
<td>4 months</td>
</tr>
<tr>
<td>IV</td>
<td>30 sec</td>
<td>+6 seconds</td>
<td>-6 seconds</td>
<td>6 min</td>
<td>4 months</td>
</tr>
<tr>
<td>V</td>
<td>30 sec</td>
<td>+6 seconds</td>
<td>-6 seconds</td>
<td>6 min</td>
<td>4 months</td>
</tr>
<tr>
<td>VI</td>
<td>30 sec</td>
<td>+6 seconds</td>
<td>-6 seconds</td>
<td>6 min</td>
<td>4 months</td>
</tr>
</tbody>
</table>
Repigmentation measurement
Hi-Light trial for vitiligo

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Results (1)

- **Approach letter sent:**
  - Secondary care n=48
  - Primary care n=67

- **General advertising:**
  - Vitiligo Society n=74
  - Vitiligo PSP participants n=248 (overlap with Vitiligo Society)

- **6 more GP surgeries were declined participation due to limited capacity**

- **Expression of interest:**
  - Total n=97
  - Secondary care n=38/97 (39%)
  - Primary care n=28/97 (29%)
  - Vitiligo Society n=14/97 (14.5%)
  - Other n=17/97 (17.5%)
Results (2)

**Telephone pre-screening**

- Ineligible n=27/97 (28%)
  - Reasons:
    - Photosensitive drugs (70%)
    - Segmental vitiligo (26%)
    - Known photosensitivity (7.5%)
    - Widespread vitiligo (1.5%)

- Potentially eligible n=54/97 (55.6%)

- Not fully pre-screened n=16/97 (16.4%)

- Potentially eligible and willing to be randomised n=45/54 (83%)
  - Secondary care n=21/45 (47%)
  - Primary care n=10/45 (22%)
  - Vitiligo Society/PSP n=8/45 (17.5%)
  - Google/other sources n=6/45 (13.5%)

- Potentially eligible but unwilling to be randomised n=9/54 (17%)
  - Reasons:
    - Risk of burning (22%)
    - Time consuming (11%)
    - Forthcoming holidays (11%)
    - Possible placebo group (11%)
    - Did not specified (45%)

- Due to financial/time constraints we did not allocate: n=16/45 (35%)

- Booked at clinic for eligibility confirmation and baseline n=29/45 (65%)

- Attended clinic, confirmed eligible and randomised n=29/29 (100%)
Results (3)

Screening/Educational/Randomisation visit and Baseline visit
Total n=29*

Group A-active Dermfix
n=10

Group B-active Waldmann
n=9

Group C-placebo Dermfix
n=10

Week 8 hospital visit: n=29 (100%)

Lost to follow up
n=1/29 (3%)

Withdrawals
n=3/29 (10%)
Reasons:
- Too time consuming (7%)
- No improvement (3%)

Week 16 final visit
n=25/29 (86%)
Adherence

- 28 of 29 diaries retrieved
- 90% (25/29) of patients completed 4 months treatment regimen
- 75% (21/28) performed treatment correctly
- Only 1 episode of grade 3 erythema
### Hand-held devices output pre&post trial

<table>
<thead>
<tr>
<th></th>
<th>Dermfix</th>
<th></th>
<th>Waldmann</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Pre-trial</td>
<td>Post-trial</td>
<td>Pre-trial</td>
<td>Post-trial</td>
</tr>
<tr>
<td>Mean output mW/cm²</td>
<td>3.81</td>
<td>3.24</td>
<td>4.5</td>
<td>3.92</td>
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<tr>
<td>SD mW/cm²</td>
<td>0.37</td>
<td>0.42</td>
<td>0.2</td>
<td>0.67</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>9.7%</td>
<td>12.9%</td>
<td>4.4%</td>
<td>17%</td>
</tr>
<tr>
<td>Mean difference</td>
<td>-14.5%</td>
<td></td>
<td>-13%</td>
<td></td>
</tr>
<tr>
<td>Maximum difference pre and post-trial</td>
<td>-28.5%</td>
<td></td>
<td>-38.5%</td>
<td></td>
</tr>
<tr>
<td>Minimum difference pre and post-trial</td>
<td>-7.4%</td>
<td></td>
<td>+10.5%</td>
<td></td>
</tr>
</tbody>
</table>
Repigmentation
Minimal Erythema Dose test

- 45% of patients had different skin type determined by a dermatologist and the MED test
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Conclusions (1)

Recommendations for the main trial:

- Careful choice of transparencies
- Dermfix
- Devices Output pre-trial
- Minimal Erythema Dose
- Educational DVD on hand-held phototherapy
Conclusions (2)

- Patients/clinicians willing to participate
- Educational package is comprehensive and well tolerated
- National multi-centre RCT on hand-held devices is feasible
National Institute for Health Research call for a national RCT on vitiligo......
Thank you

Trial Management Group:
Dr V. Eleftheriadou
Prof. H. Williams
Dr K. Thomas
Dr J. Ravenscroft
Dr J. Batchelor
Mrs Maxine Whitton
Dr R. Dawe

Research nurses:
Mrs Sue Davies-Jones
Mrs Catherine Shelley
Mrs Jo Llewelyn
Mrs Susan Yule

Co-ordinating centre:
Mrs Lisa Charlesworth
Mrs Jo Perdue

IT specialist: G. Watson
Medical Physicist: R. Farley
Statistician: Samir Mehta

Principle investigators:
Drs J Ravenscroft and A. Alexandroff