CAN PSORIASIS TREATMENT BE AIDED BY OMEGA-3 FATTY ACIDS?
Psoriasis

- Chronic skin disease
  - Cell life cycle – build up
  - Can be disabling

Symptoms:
- Red patches with silvery scales
- Dry, cracked skin that may bleed
- Itching, burning, soreness
- Thickened, pitted or ridged nails

Source: Mayo Clinic
Psoriasis - Causes

- **Immune reaction**
  - Overactive T-cells attack skin
    - Blood vessels dilate
    - Increase skin production
    - Unknown why

- **Triggers:**
  - Infections
  - Skin injury
  - Stress
  - Cold weather
  - Smoking
  - Alcohol
  - Medications (lithium)

Source: Mayo Clinic
Psoriasis – Complications

- Thickened skin, infections
  - Scratching
- Low self-esteem
- Stress
- Anxiety
- Social isolation

- Correlated with metabolic syndrome, inflammatory bowel disease, cardiovascular disease, cancer

Source: Mayo Clinic
Psoriasis – Treatment

**Types of Treatment**

- **Topical**
  - Corticosteroids, vitamin D analogues, anthralin, retinoids, salicylic acid, coal tar moisturizers

- **Light Therapy**
  - Sun, UVB, photochemotherapy, lasers

- **Medication**
  - Retinoids, Methotrexate, Cyclosporine, Hydroxyurea, Thioguanine

**Considerations**

- Side effects can be severe with medications
  - Only short term use

- Disease and treatment effects are unpredictable

- Skin can become resistant to treatments

- Psoriasis has no known cure
  - Treat symptoms
    - Inflammation, cell growth

Source: Mayo Clinic
Psoriasis – Importance

- Most prevalent autoimmune disease in U.S.
  - 7.5 million Americans (2.2% of population)
  - 125 million worldwide
- 60% of patients reported it as a large problem
- 25% considered to have moderate to severe
  - At least 3% of body covered

- Costs: $11.25 billion annually
  - Includes lost work
    - 60% of patients miss 26 days average per year
  - One year of treatment: $1,197 to $27,577 (Science Daily)

Source: psoriasis.org
Psoriasis is a common skin disorder with uncomfortable symptoms and complications.

Treatment is expensive – for the individual and for the government.

Individuals may become resistant to treatment and experience severe symptoms from harsher medications.

Research into a new and less expensive alternative, or treatment enhancer, is crucial to improving the lives of these individuals.
Omega-3 Fatty Acids

- Anti-inflammatory properties
  - Management of inflammatory and autoimmune diseases (Simopoulos, 1991)

- Patients with autoimmune diseases usually respond to EPA and DHA supplementation by decreasing elevated cytokine levels (Weber, 1991)
Psoriasis can be a side-effect of lithium. Article presented two cases of lithium use for bi-polar disorder.

- 4-6g of omega-3 cleared psoriasis, not depression (Akkerhuis, 2003)

13 adults with psoriasis

- 8 week study
- Diet low in Omega-6, add fish oil

Decrease in:

- scaling (p<0.001)
- redness (p<0.02)
- Thickness (p<0.004)
- 5 moderate, 3 minimal, 5 same (Ziboh, 1986)
Purpose

- Research suggests that psoriasis, essentially an inflammatory disorder, should benefit from an anti-inflammatory diet (Balbás, 2011)

- Purpose of this presentation is to:
  - Present a study suggesting omega-3 fatty acids can minimize symptoms of psoriasis
  - Explore the use of omega-3’s as a way to treat inflammation and enhance current treatments
Study on the use of omega-3 fatty acids as a therapeutic supplement in treatment of psoriasis.

Design

- Prospective, open, single-center, controlled observational study with 2-month follow-up

- 8 week treatment
  - Data collected at baseline, 4, and 8 weeks

- Exclusion:
  - Receiving therapy, pregnant or breastfeeding women, liver disease or neuropathies

- Group A: Tacalcitol, 2 capsules Oravex
  - 280mg EPA, 40mg DHA

- Group B: Tacalcitol

**Tacalcitol:**
D3 analogue ointment. Inhibits proliferation, induces differentiation of keratinocytes. May temper inflammation (Peters, 1997)
Study Population

- 30 patients
  - 15 in each group
- Moderate or mild plaque psoriasis
- 63.3% men
- 18-70 years old
  - Mean $58.97 \pm 15.1$ years
- Mean BMI: $26.85 \pm 3.3$ kg/m$^2$
- 30.0% healthy BMI
- 53.3% overweight
- 16.7% obese
## Results

### PASI
Psoriasis area and severity index

### NAPSI
Nail psoriasis severity index

### DLQI
Dermatology life quality index

<table>
<thead>
<tr>
<th>Results of primary endpoints</th>
<th>Baseline visit week 0</th>
<th>Intermediate visit week 4</th>
<th>End visit week 8</th>
<th>Difference baseline–end</th>
<th>Significance baseline–end</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PASI</strong></td>
<td></td>
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<tr>
<td>Tacalcitol</td>
<td>8.53</td>
<td>6.53</td>
<td>5</td>
<td>-3.53</td>
<td>P &lt; 0.0001</td>
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<tr>
<td>Tacalcitol + Oravex</td>
<td>9.6</td>
<td>5.4</td>
<td>2.8</td>
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<td><strong>NAPSI</strong></td>
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<td>Tacalcitol</td>
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<td>P = 0.0480</td>
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<td>2.45</td>
<td>1.68</td>
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<td><strong>DLQI</strong></td>
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<tr>
<td>Tacalcitol</td>
<td>5.67</td>
<td>3.67</td>
<td>2.64</td>
<td>-3.03</td>
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<td>Tacalcitol + Oravex</td>
<td>8.53</td>
<td>2.63</td>
<td>1.86</td>
<td>-6.67</td>
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</tbody>
</table>
Results

- PASI: -3.5 and -6.8  
  P <0.0001
- NAPSI: 0 and -1.23  
  P <0.048
- DLQI: -3.03 and -6.67  
  P <0.0056
Results

Significant improvement observed in secondary endpoints

<table>
<thead>
<tr>
<th>Results of secondary endpoints</th>
<th>Baseline visit week 0</th>
<th>Intermediate visit week 4</th>
<th>End visit week 8</th>
<th>Difference baseline–end</th>
<th>Significance baseline–end</th>
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</thead>
<tbody>
<tr>
<td><strong>Scalp lesion</strong></td>
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<td>Tacalcitol</td>
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<td><strong>Pruritus (itching)</strong></td>
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<tr>
<td>Tacalcitol</td>
<td>66.7%</td>
<td>40.0%</td>
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<td>Tacalcitol + Oravex</td>
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<td>6.7%</td>
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<td>−80%</td>
<td>P &lt; 0.0001</td>
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<td><strong>Lesion of target plaque</strong></td>
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<tr>
<td>Erythema (redness)</td>
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<td>Tacalcitol</td>
<td>2.20</td>
<td>1.80</td>
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<td><strong>Infiltration</strong></td>
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<td>Tacalcitol</td>
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<td><strong>Scaling</strong></td>
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<td>1.00</td>
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</tbody>
</table>
Results

Significant improvement in secondary endpoints with Ovarex and Tacalcitol treatment
Discussion

- Improvement with omega-3 supplement after 8 weeks
- Despite low numbers, statistical difference between groups indicates improvement when Oravex added to tacalcitol
- According to this study, the addition of oral omega-3’s to topical psoriasis treatments will contribute to reducing symptoms
Limitations

- Small study
  - 30 participants
- Not placebo controlled
- Baseline severities may not have been the same
- Both groups receive some type of treatment
- Ovarex contains additional ingredients
  - 50 mg of thyme extract, 50 mg of olive leaf extract, 20 mg of green tea extract, 7.5 mg of zinc, 27.5 μg of selenium per capsule
Future Studies

- Larger, placebo-controlled study with and without psoriasis treatment

- Study controlling diet
  - Omega-3’s in food

- Look at long term effects
  - Do symptoms return?

- Study comparing different doses of omega-3’s
References

- Mayoclinic.com
- Psoriasis.org
Questions?