Spa Therapy and Balneotheraphy in Fibromyalgia

Arif Dönmez
FIBROMYALGIA

Fibromyalgia syndrome is a chronic disorder characterized by widespread musculoskeletal pain and tenderness in previously defined tender point sites.

MAIN FEATURES
- generalized pain
- fatigue
- sleep disturbances
DIAGNOSIS

- Widespread pain in combination with
- tenderness at 11 or more of the 18 specific tender point sites

COMMON CO-MORBID CLINICAL CONDITIONS

- Chronic fatigue syndrome
- Irritable bowel syndrome
- Depression and anxiety disorders
- Tension and migraine headache
- Temporomandibular disorder
- Interstitial cystitis
NON-PHARMACOLOGICAL INTERVENTION

- Exercise
- Patient education
- Cognitive behavioral therapy
- Multidisciplinary therapy
- Balneotherapy
- Relaxation training
- Biofeedback
- Acupuncture,
- Electrotherapy
- Massage therapy
- .........................
Outcome measures for FM*

- Pain
- Tender points
- Physical function
  - Cardio respiratory fitness
  - Self reported physical function
  - Musculoskeletal performance
- Global well being or perceived improvement
- Self-efficacy
- Fatigue and sleep
- Psychological function

BALNEOTHERAPY STUDIES WITH FM

- One bath effects
- Observational studies
- Studies with control groups
  • Studies in outpatient settings
  • Studies in spa centers
  • Balneotherapy group in a spa center /
    Controls in daily living area
# One Sulphur Bath

| Gutenbrunner Chr. et al. | FM 17 | 1 sulphur bath (20mg/l H₂S) 36°C 20 minutes | Tenderness threshold ↑ (pressure algometer)  
Heat pain threshold ↑ (Peltier thermode)  
Cold pain threshold ↓ (Peltier thermode) |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1 cryochamber (-67°C) 3 minutes</td>
<td>Cold pain threshold ↓ (Peltier thermode)</td>
</tr>
</tbody>
</table>

OBSERVATIONAL STUDY

28 patients with PsA+FM

• Every other day sulphur bath (37°C, 20 min)
• Every other day peloid packing on 4 extremity and back (40-42°C, 20 min)
• Heliotherapy from 2 X (10 min) up to - 6 hours
• Bath on Dead Sea

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender points</td>
<td>12.9</td>
<td>7.4</td>
</tr>
<tr>
<td>Morning stiffness</td>
<td>33.2 min</td>
<td>12.8 min</td>
</tr>
<tr>
<td>Inflamed joints</td>
<td>18.4</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Sukenik S et al: Balneotherapy at the Dead Sea for patients with psoriatic arthritis and concomitant fibromyalgia. IMAJ 2001;3:147-50
STUDIES WITH CONTROL GROUPS

• **Studies in outpatient settings**
  – Balneotherapy (Evcik D, Altan L)
  – Balneotherapy + exercise / exercise (Yurtkuran M)

• **Studies in spa centers**
  – Both Balneotherapy and Control groups are in the same spa center (Sukenik S, Buskila D, Neumann L)
  – Balneotherapy with different application modalities in a spa center (Şen U)
  – Balneotherapy in the spa center, controls in daily living area (Dönmez A, Kesiktaş N)
<table>
<thead>
<tr>
<th>Yurtkuran M, Celiktas M</th>
<th>FM 40</th>
<th>Groups</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 women 2 weeks 37°C 20 minutes thermal bath + Relaxation Exercise</td>
<td><strong>End of Therapy, 2\textsuperscript{nd}, 6\textsuperscript{th} week</strong> Pain ↓ Pressure pain tolerance scores ↑</td>
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<td></td>
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<tr>
<td>20 women 2 weeks Relaxation Exercise</td>
<td>Pain ↓ (2\textsuperscript{nd}, 6\textsuperscript{th} week)</td>
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</table>

## Out-patient

| Evcik D et al 2002 | FMS 42 | 22 patients: 3 weeks (Total 15 thermal baths) 37°C, 20 min | Pain (VAS) ↓  
| Tender points ↓  
| FIQ ↓  
| (up to 6 months)  
| BDI ↓  
| (only after therapy) |

Rheumatol Int. 2002 Jun;22(2):56-9
| Altan L et al 2003 | FMS 50 | 25 patients: 3 / week (12 weeks) 37°C, 35 min pool-based exercise in thermomineral water | In both group 12. and 24 weeks Pain (VAS) ↓ Tender points ↓ FIQ ↓ Fatigue ↓ BDI ↓ Improved Global Evaluation (patiens’ & phy) |

Altan L et al: Investigation of the effects of pool-based exercise on fibromyalgia syndrome. Rheumatol Int. 2003 Published online 24.09.03
### Spa center

<table>
<thead>
<tr>
<th>Groups</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buskila D et al. 1996</strong></td>
<td></td>
</tr>
<tr>
<td>FMS 48</td>
<td>24 patients: 10 days in Dead Sea Area, 37°C, 20 min. Sulphur baths</td>
</tr>
<tr>
<td></td>
<td>Pain ↓ (A.T., 2.,6., weeks)</td>
</tr>
<tr>
<td></td>
<td>Tender point count ↓</td>
</tr>
<tr>
<td></td>
<td>24 patients: 10 days in Dead Sea Area</td>
</tr>
<tr>
<td></td>
<td>Pain ↓ (2.,6., weeks)</td>
</tr>
<tr>
<td></td>
<td>Tenderness threshold --</td>
</tr>
</tbody>
</table>
Spa center

<table>
<thead>
<tr>
<th>Neumann L et al. 1996</th>
<th>FM 48</th>
<th>Groups</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 patients:</td>
<td></td>
<td>10 days in Dead Sea area</td>
<td>In 48 patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37°C, 20 min. Sulphur baths</td>
<td>Improvement in all parameters of SF-36 and psychological well-being after 10 days</td>
</tr>
<tr>
<td>24 patients:</td>
<td></td>
<td>10 days in Dead Sea area</td>
<td>Improvement in physical functioning and bodily pain up to 3rd months</td>
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32 Patients with FMS
- Group I: 17 Patients: 2 baths / day (8 days)
- Group II: 15 Patients: 1 bath + 1 peloid packing / day (8 days)

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<thead>
<tr>
<th></th>
<th>Group I</th>
<th>Group II</th>
<th>Group I / II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>p&lt;0.0001</td>
<td>p&lt;0.0001</td>
<td>NS</td>
</tr>
<tr>
<td>(Before-8. Days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tender point count</td>
<td>p&lt;0.0001</td>
<td>p&lt;0.007</td>
<td>p&lt;0.00</td>
</tr>
<tr>
<td>(Before-8. Days)</td>
<td></td>
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<tr>
<td>Total Algometric scour</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
<td>NS</td>
</tr>
<tr>
<td>(Before-8. Days)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Beck Depression Inventory</td>
<td>p&lt;0.034</td>
<td>p&lt;0.0001</td>
<td>NS</td>
</tr>
<tr>
<td>(Before-8. days)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hamilton Depression Rating Scale</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
<td>NS</td>
</tr>
<tr>
<td>(Before-8. Days)</td>
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### Groups

| Dönmez A | FMS 30 | 16 women 2 weeks  
37°C  20 minutes pool bath (every day)  
+ Pressured shower (every other day)  
+ Classical massage (every other day)  
in Balcova Spa Center |
|----------|--------|------------------------------------------------|
| Dönmez A | FMS 30 | 13 women  (1 withdraw after randomization)  
2 weeks standard medical care  
in daily living area |

Dönmez A et al: Spa therapy in fibromyalgia: A Randomised controlled clinic study (Unpublished data)
- Improvement in all study variables in the spa group in short- and middle-term
- Improvements in spa group are superior to the controls
  - FIQ (until 6th month)
  - Pain (until 1st month)
  - Tender point count (until 1st month)
  - Patient’s global assessment (end-of-treatment evaluation)
  - Fatigue (end-of-treatment evaluation)
Balneotherapy + Electrotherapy (16): After therapy and up to 6. months
- Pain (VAS) ↓
- Tender points count ↓
- Total algometric score ↑
- Beck Depression Inventory (BDI) ↓
  - Hamilton Depression Rating Scale (HDRS) ↓

Electrotherapy (20): After therapy and up to 6. months
- Pain (VAS) ↓ (Only after therapy)
- Hassas nokta ↓ (Only after therapy)
- Total algometric score NS
- BDI ↓ (Only after therapy)
- HDRS ↓ (Only after therapy)

Hydrotherapy + Electrotherapy (20): After therapy and up to 6. months
- Pain (VAS) ↓
- Tender points count ↓
- Total algometric score ↑
- BDI ↓ (Only after therapy)
- HDRS ↓ (Only after therapy)

Kesiktaş N et al: The short and long time evaluations of some therapy modalities the patients with fibromyalgia syndrome. (4. Turkish-German Balneology and Climatology Congress 2000)
MECHANISM?

- Heat
- Relaxation of muscle spasm
- Gate control theory
- Peripheral vasodilatation
- Increase of beta endorphin level
- Rest
- Environment change
- Stay with other FM patients