Cognitive therapy for patients who report electromagnetic hypersensitivity

Lena Hillert, MD, PhD
Department of Public Health Sciences, Div. of Occupational Medicine, Karolinska Institutet. Occupational and Environmental Health, Stockholm County Council, Sweden.
Hypersensitivity to electricity, electrical hypersensitivity, electromagnetic hypersensitivity...

Syndrome label set by the patients because of perceived association to EMF exposure!

- Nonspecific symptoms
- Individual variations
- No diagnostic test available
Facial skin complaints, eye irritation, runny or stuffy nose, impaired sense of smell, hoarse dry throat, coughing, sense of pressure in ear, fatigue, heaviness in the head, headache, nausea/dizziness, difficulties in concentrating.

Hillert et al, 2002
Working definition

Electromagnetic hypersensitivity

Symptoms that are experienced in proximity to or during use of electrical equipment, and that result in varying degrees of discomfort or ill health in the individual and that an individual attributes to activation of electrical equipment.
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>Skin index&lt;br&gt;Neurovegetative index</td>
</tr>
<tr>
<td>Belief</td>
<td>Electromagnetic hypersensitivity</td>
</tr>
<tr>
<td>Triggering factors</td>
<td>VDU and/or fluorescent lighting&lt;br&gt;Other sources/ situations than above</td>
</tr>
<tr>
<td>Temporal aspects</td>
<td>Duration of symptoms&lt;br&gt;Recurrent acute or chronic symptoms</td>
</tr>
<tr>
<td>Behavior</td>
<td>Avoidance of triggering factors&lt;br&gt;On sick leave</td>
</tr>
</tbody>
</table>
Rational for management and interventions programs, including cognitive therapy:

- Different contributing factors indicated
- EMF not proven causal factor
- Alternative explanatory factors frequently identified
- Symptoms may be triggered by conditioned stimuli
- Avoidance of EMFs and/or VDU is not necessary for improvement in all cases
- Reported success of different treatments and actions
Intervention

- **Investigation:**
  - Medical work-up
  - Psychosocial factors
  - Environmental factors

- Prompt actions if suboptimal conditions are identified

- Establish a plan of action; follow-up
Medical diagnoses in patients with electromagnetic hypersensitivity (much depending on study group)

COMs/Dermatology clinics:

- ~15 % somatic diagnoses
- Skin symptoms: ~50 % dermatological diagnoses
- Few psychiatric diagnoses, more frequently psychological conditions of possible importance
Deviating physiological reactions

- Stress-sensitive hormones
- Heart rate
- Skin temperature
- Pupil reactions to light
- EEG and VEP during exposure to flickering light

*Imbalance of the autonomic nervous system?*
Treatment in case of persisting symptoms

- No standard treatment available
- Individual support and programs
  - Focus on reduction of symptoms and disability
  - Try treatments shown beneficial in chronic illness
    (cognitive therapy, acupuncture, hypnosis, relaxation training, low doses of antidepressant drugs...)
Cognitive-behavioral therapy

- Structured
- Short-term
- Present-oriented
- Goal-oriented and problem-focused

Team work!
- CT emphasizes collaboration and active participation
Cognitive-behavioral therapy

Underlying theory:

- The way in which people structure their experiences influences the way in which they think, feel, and behave.

CT teaches patients to identify, evaluate, and respond to dysfunctional thoughts and beliefs (automatic thoughts).
Cognitive-behavioral therapy

Focuses on:
• Controlling and reducing complaints, or
• Questioning and testing beliefs

The focus of the therapy varies from patient to patient (depending on identified needs and short- and long-term goals).

A variety of techniques may be used, including relaxation techniques.
Cognitive-behavioral therapy

Structured sessions:
• Brief update
• Setting the agenda (present theoretical models)
• Review of homework
• New issues (identify problems and formulating them in cognitive terms)
• Setting new homework assignments
• Summarizing the session, feedback
Stimulus

(Enhancement of) symptoms, e.g., skin sensation

Stress, anxiety

Avoidance (helpless)

Confirmation bias

(Experience, knowledge) Interpretation of symptoms/attribution

Alternative actions/explanations

Coping (control)

Vicious circle
Cognitive-behavioral therapy

Structured sessions:
• Brief update
• Setting the agenda (present theoretical models)
• Review of homework
• New issues (identify problems and formulating them in cognitive terms)
• Setting new homework assignments
• Summarizing the session, feedback
Evaluation of cognitive-behavioral therapy for patients reporting EHS


<table>
<thead>
<tr>
<th>Study</th>
<th>Andersson et al.</th>
<th>Hillert et al.</th>
<th>Harlacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment Patients</td>
<td>Patients</td>
<td>Patients</td>
<td>Patients</td>
</tr>
<tr>
<td>Men/women</td>
<td>5/12</td>
<td>6/16</td>
<td>(26)</td>
</tr>
<tr>
<td>Age, years</td>
<td>42 (26-53)</td>
<td>40 (26-58)</td>
<td>44</td>
</tr>
<tr>
<td>Duration of illness,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>years</td>
<td>&gt;0.5</td>
<td>&lt;1-6</td>
<td>&lt;2-&gt;4</td>
</tr>
<tr>
<td>Skin symptoms/ index</td>
<td>All: subjective</td>
<td>1.9</td>
<td>All?</td>
</tr>
<tr>
<td>index</td>
<td>reactions within</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neurovegetative</td>
<td>?</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>symptoms/ index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triggering factors</td>
<td>Sources of light</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>22</td>
<td>(VDU or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“EHS”)</td>
</tr>
<tr>
<td></td>
<td>?</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Avoidance behavior</td>
<td>17</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>On sick leave/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>disability pension</td>
<td>2</td>
<td>1 (&lt; 3 months)</td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(part or full time)</td>
<td>15</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

No somatic or psychiatric disorder in need of treatment/explaining complaints
Short term therapy

- **Andersson et al:**
  Sessions 1 hour, 4-10 sessions
  (mean 7.4)

- **Hillert et al:**
  Sessions 1-2 hours, 3-12 sessions
  (mean 6.5)

- **Harlacher:**
  Sessions 75-180 min. 3-16 sessions
  (mean 8)
Results

- *Andersson et al:* Sign reduction in estimated disability in TG (mean 22 weeks after start) (but no change in reactions during provocation tests)

- *Hillert et al:* No sign differences TG and CG (6 and 12 months after start) (reduction in symptoms in both groups)

- *Harlacher:* Sign reduction in complaints in TG (∼20 weeks after start) (half of the patients: classified as “improved” or “cured”)
# Management and treatment experiences

<table>
<thead>
<tr>
<th>Management/therapy</th>
<th>Improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company based occup. health service</td>
<td>~ 90%</td>
</tr>
<tr>
<td>(Lidén et al, 96)</td>
<td></td>
</tr>
<tr>
<td>Investigation by specialist</td>
<td>~ 40 – 50%</td>
</tr>
<tr>
<td>(Gustavsson, Ekenvall, 92. Hillert, 93)</td>
<td></td>
</tr>
<tr>
<td>Acupuncture</td>
<td>No sign effect</td>
</tr>
<tr>
<td>(Arnetz et al, 95)</td>
<td>(Sign. reduction in symptoms in both groups)</td>
</tr>
<tr>
<td>EMF clean-ups</td>
<td>?</td>
</tr>
</tbody>
</table>
Cognitive-behavioral therapy may have a beneficial role in reducing symptoms and disability.
Thank you for your attention!
<table>
<thead>
<tr>
<th>Time</th>
<th>Temporary symptoms (e.g., skin/eyes associated with VDU work)</th>
<th>Neurovegetative symptoms reported to be triggered by most sources of EMF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Heard of EHS, considering a possible relationship symptoms-EMF</td>
<td>Looking for confirmation</td>
</tr>
<tr>
<td></td>
<td>Convinced of a causal relationship</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goals:</th>
<th>Complete rehabilitation</th>
<th>Reduce symptom</th>
<th>Improve daily life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means:</td>
<td>Information, alternative explanations</td>
<td>E.g., cognitive therapy</td>
<td>Supportive therapy</td>
</tr>
<tr>
<td>Prognosis:</td>
<td>Good</td>
<td>Varies</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Recommendations; medical contact

- Allow enough time and/or repeated visits
- Establish a trustful relationship, shared ambition: the patients improvement
- Ensure follow-up and continuity
- Apply a non-judgmental and supportive approach, but inform of your professional opinion
- Focus on reducing disability rather than searching for a specific causal factor, and: