Evaluation of complementary/alternative medicine

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TISANE AMINCISSANTE
à base de plantes
HERBAL TEA FOR WEIGHT MANAGEMENT

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MADE IN LUXEMBOURG
Outline of my lecture

• Background
• Evaluation of CAM
  1) Efficacy/effectiveness
  2) Safety
• Obstacles
• The dilemma
• Conclusion
Background
The range of complementary medicine

ACUPUNCTURE - diagnosis + therapy
AROMATHERAPY - mainly therapy
CHIROPRACTIC - diagnosis + therapy
HEALING (faith, spiritual, etc) - diagnosis + therapy
HERBALISM (phytotherapy) - diagnosis + therapy
HOMOEOPATHY - diagnosis + therapy
IRIDOLOGY - diagnosis only
KINESIOLOGY - diagnosis + therapy
MASSAGE - diagnosis + therapy
OSTEOPATHY - diagnosis + therapy
REFLEXOLOGY - diagnosis + therapy

• physical
• pharmacological
• undefined "energies"
CAM: common features

- Emphasis on holism, “energy” etc
- ‘Natural’ treatments
- ‘Safe’ treatments
- Individualisation
- Self-healing properties of body
- Long tradition of usage
- Private healthcare
Why does it matter?
<table>
<thead>
<tr>
<th>Country</th>
<th>Study Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>Buda, et al. Orv Hetil 2002;143:891</td>
</tr>
<tr>
<td>Italy</td>
<td>Menniti-Ippolito, et al. EJCP 2002;58:61</td>
</tr>
<tr>
<td>Australia</td>
<td>MacLennon, et al. Lancet 1996;347:569</td>
</tr>
<tr>
<td>Germany</td>
<td>Härtel, et al. FKM 2004;11:327</td>
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</tbody>
</table>

One-year prevalence of CAM-use in general populations
Why is CAM so popular?
<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Philosophical congruence</td>
<td>• Desperation</td>
</tr>
<tr>
<td>• Locus of control</td>
<td>• Rejection of science</td>
</tr>
<tr>
<td>• Therapeutic relationship</td>
<td>• Rejection of establishment</td>
</tr>
</tbody>
</table>
Evaluation of CAM
Aim of evaluation

Which form of CAM generates more than harm in which condition?
1. Efficacy/Effectiveness
Hierarchy of evidence

- Systematic reviews of RCTs
- Randomised clinical trials
- Controlled clinical trials
- Uncontrolled data (e.g. case reports, case series, observational studies)
RCTs of CAM: potential problems

- Placebos not possible
- Double-blinding not possible
- Patients with strong preference may not agree to randomisation
- Treatments are complex, individualised etc.
- Adequate endpoints do no exist
- Therapeutic effects are small
- Therapeutic effects are slow
- Investigators are not impartial
- The notion that CAM defies science
- Funds are scarce
**Spiritual healing for chronic pain**

**Design:** double-blind RCT with 4 parallel arms

**Sample:** 120 patients with idiopathic chronic pain

**Intervention:**
- A) face to face healing by 5 experienced healers
- B) face to face simulated healing by 5 actors
- C) distant healing by 5 (hidden) healers
- D) stimulated distant healing with no human presence

**Result:** Primary outcome measure (pain, McGill) decreased in all groups with no significant inter-group differences

• Random bias
• Selection bias
Hierarchy of evidence

- Systematic reviews of RCTs
- Randomised clinical trials
- Controlled clinical trials
- Uncontrolled data (e.g. case reports, case series, observational studies)
SRs of Spiritual healing

(n = 23 RCTs)

The methodological limitations of several studies make it difficult to draw definitive conclusions... However, .. 57% of trials showed a positive treatment effects, the evidence thus far merits further study.


(n = +17 studies)

[The new trials]...shift the weight of the evidence against the notion that distant healing is more than a placebo.

Ernst. WKW 2003: 241
Systematic reviews of CAM: potential problems

- Primary data are flawed
- Primary data are scarce
- Publication bias
- Heterogeneity
- Investigators are not impartial
- Funds are scarce
## (Cochrane) Reviews of CAM Modalities

<table>
<thead>
<tr>
<th>CAM Modality</th>
<th>Cochrane</th>
<th>Non-Cochrane</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-herbal supplements</td>
<td>71</td>
<td>46</td>
<td>117</td>
</tr>
<tr>
<td>Herbal remedies</td>
<td>23</td>
<td>79</td>
<td>102</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>10</td>
<td>69</td>
<td>79</td>
</tr>
<tr>
<td>Chiropractic</td>
<td>2</td>
<td>33</td>
<td>35</td>
</tr>
<tr>
<td>Homeopathy</td>
<td>4</td>
<td>34</td>
<td>38</td>
</tr>
<tr>
<td>Other</td>
<td>53</td>
<td>171</td>
<td>224</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
<td>332</td>
<td>495</td>
</tr>
</tbody>
</table>
Ginkgo for dementia

**Design:** systematic review

**Sample:** 10 RCTs

**Results:**
- Methodological quality was often excellent
- Totality of this evidence suggest efficacy in delaying clinical deterioration

Ernst, Pittler *Perfusion* 2005; 18: 388
2. Safety
"Looks like he died of natural causes."
Evaluating the safety of CAM: potential problems

- General opinion (CAM is safe)
- Safety is not an issue in CAM research
- CAM community is not cooperative
- There is no ‘post-marketing’ surveillance
- There are no reliable data
- Investigators are not impartial
- Funds are non-existent
### Adverse effects of CAM

#### Survey of large sample of British CAM users

<table>
<thead>
<tr>
<th>Therapy</th>
<th>reporting</th>
<th>adverse effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal manipulation</td>
<td>15.8 %</td>
<td>(~50%)</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>12.5 %</td>
<td>(7-11%)</td>
</tr>
<tr>
<td>Homoeopathy</td>
<td>9.8 %</td>
<td>(~20%)</td>
</tr>
<tr>
<td>Herbal medicine</td>
<td>7.6 %</td>
<td>(depends)</td>
</tr>
</tbody>
</table>

Specific research question

• Ginkgo biloba has been associated with complications of bleeding

• Does ginkgo affect haemostasis
  - as a monotherapy?
  - through herb-drug interactions?
# Ginkgo: case reports of bleeding

<table>
<thead>
<tr>
<th><strong>Design:</strong></th>
<th>systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Searches:</strong></td>
<td>5 electronic databases</td>
</tr>
<tr>
<td><strong>Inclusion:</strong></td>
<td>clinical reports of bleeding associated with ginkgo monopreparations</td>
</tr>
<tr>
<td><strong>Results:</strong></td>
<td>• 12 articles were found</td>
</tr>
<tr>
<td></td>
<td>• methodological quality often poor</td>
</tr>
<tr>
<td></td>
<td>• likelihood of causality was low</td>
</tr>
<tr>
<td><strong>Conclusions:</strong></td>
<td>“causality between ginkgo biloba intake and bleeding is unlikely”</td>
</tr>
</tbody>
</table>

Ernst et al. *Perfusion* 2005; 18: 52
**Ginkgo: RCTs testing effects on coagulation**

<table>
<thead>
<tr>
<th><strong>Design:</strong></th>
<th>systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Searches:</strong></td>
<td>6 electronic databases</td>
</tr>
<tr>
<td><strong>Inclusion:</strong></td>
<td>RCTs assessing at least 1 coagulation parameter</td>
</tr>
</tbody>
</table>
| **Results:**  | • 8 RCTs were found (2 on interactions)  
               • most were of good methodological quality  
               • no significant changes were observed |
| **Conclusions:** | “evidence does not demonstrate that extracts of ginkgo biloba causes significant changes in blood coagulation parameters” |

Obstacles
CAM research: direction of conclusions

(n = 652, year 2002)

Germany: 10.0 (n=137)
UK: 2.5 (n=183)
Italy: 4.0 (n=39)
France: 1.3 (n=47)
Spain: 2.0 (n=24)
NL: 0.8 (n=17)
Belgium: 0.4 (n=17)
USA: 4.5 (n=183)

Giovannini, et al. FKM 2004
**CAM: the “black and white” view**

**Proponents:** CAM is useful, regardless of evidence

**Opponents:** CAM is a waste of time, regardless of evidence
YES, AS A MATTER OF FACT, I DO HAVE TO TAKE EVERYTHING AS BLACK OR WHITE
# Homeopathic treatment for chronic disease

<table>
<thead>
<tr>
<th><strong>Design:</strong></th>
<th>Observational study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample:</strong></td>
<td>6544 chronic out-patients</td>
</tr>
<tr>
<td><strong>Endpoint:</strong></td>
<td>7-point Likert scale</td>
</tr>
<tr>
<td><strong>Results:</strong></td>
<td>71% of all patients perceived positive changes</td>
</tr>
<tr>
<td><strong>Conclusion:</strong></td>
<td>“The results show that homeopathic treatment is a valuable intervention”</td>
</tr>
</tbody>
</table>

Perceived therapeutic effect (PTE)
The “perceived therapeutic effect”

- Natural course of disease
- Concomitant treatments
- Regression towards the mean
- Therapist-patient interaction
- Social desirability
- Placebo-effect (expectation)
- Specific therapeutic effect
The dilemma

A form of CAM is ineffective but nevertheless helps patients
What counts is that it helps patients

Waxman J, oncologist at Imperial College London: “I’m all for healers. I’ve seen my patients look and feel better as a result. Who cares how it works as long as it does?”

Six counter-arguments:

1. therapy could also do harm
2. endorsement leads to use as an alternative
3. even effective therapies have a placebo-effect
4. doctors should not delegate empathy
5. therapy costs £100 per session
6. endorsement of mystical nonsense undermines rationality

The Times. 11 Dec 2004
It follows:

- The use of an ineffective CAM is rarely justified.
- Prescribe a treatment with specific effects and maximize non-specific effects simultaneously.
Conclusion
“CAM, like conventional medicines, should be subject to careful evaluation of their effectiveness and safety. It is important that treatments...are properly tested and that patients do not receive misleading information...NHS provision for CAM...should be confined to treatments that are supported by...evidence of both effectiveness and safety”