Is Acupuncture Effective for the Treatment of Chronic Pain? An Objective Assessment

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Rising Interests in Complementary Medicine (CM)

- Increased use of CM from 34% in 1990 to 42% in 1996
- Visits to CM practitioners increased from 400 million in 1990 to 600 million visits in 1996 per year
- Amount spent on CM visits rose from $14 billion in 1990 to $27 billion in 1996 -- most of it not reimbursed
- Over 75 medical schools offer courses on CM
- More hospitals are developing complementary and integrated medicine programs
- Health insurers are providing expanded benefit packages including CM
- Biomedical research organizations are investing more funds into the investigation of CM practices
- AMA recently devoted an entire issue on each of their journals to CM

Why the Rising Interests?

- Dissatisfaction with orthodox medicine in treating chronic disease
- Emphasis on self-healing
- Emphasis on healthy lifestyles
- Address spirituality
- Adverse effects of conventional therapies
- Escalating costs of conventional health-care

CM Is Here to Stay

The Need for Scientific Evidence

- Applying scientific methods to medicine is a relatively recent phenomenon
- The randomized controlled trial has been developed within the past 50 years
- Statistical principles and approaches for analyzing large data sets have also recently evolved

Frequently Used Methods of Investigation in Medical Research

- Qualitative research: Includes detailed case studies and patient interviews
- Laboratory and basic science approaches
- Observational studies: Includes outcomes research and other forms of observational research
- Randomized controlled trials
- Meta-analysis, systematic reviews and expert review and evaluation
- Health services research: examines the actual use and impact of interventions in context of social factors including costs and patient compliance

Acupuncture

History

- Greater than 2500 years old
- Did not gain popularity in the U.S. until 1971 when James Restin reported in the NY times how his postoperative pain after an appendectomy was relieved by acupuncture
- 1996 FDA classified acupuncture as a medical device
- 1997 NIH Consensus Conference showed "clear evidence" of acupuncture efficacy in various clinical conditions and was deemed appropriate as part of comprehensive care for others

Scientific Studies to Show the Analgesic Effects of Acupuncture

- Two types of analgesia identified
- Endorphin dependent analgesia
- Monoamine dependent analgesia

How Does Acupuncture Reduce Pain?

- Many studies performed
- Complex mechanism of neurohumeral effects to cause analgesia at a distance

What is the Latest Clinical Research Evidence for the Effectiveness of Acupuncture and Chronic Pain ?

Is Acupuncture Effective for the Treatment of Chronic Pain? A Systematic Review
(Jeanette Ezzo, Brian Berman, et at. 2000 International Association for the Study of Pain)

- Objective: Assess the effectiveness of acupuncture as a treatment for chronic pain within the context of methodological quality of the studies
- Literature Search: Medline(1966-99), 2 complementary medicine databases, 69 conference proceedings, bibliographies of other articles and reviews
- Inclusion criteria: randomized, comparison group, pain longer than 3 months, needles rather than surface electrodes, in English
- Data extracted by 2 independent reviewers using a validated instrument

- 51 studies met inclusion criteria representing 2423 chronic pain patients
- Quality of each research study was assessed by the following factors:
  A. Randomized? Score 0/1
  B. Randomization scheme described and appropriate? Score 0/1
  C. Double blind? Score 0/1
  D. Double blinding method appropriate? Score 0/1
  E. Description of dropouts and withdrawals? Score 0/1
- Scoring for the above scale A+B+C+D+E = 5 possible points **0-2 low quality**, **3-5 high quality**

- Outcomes: Positive, Neutral or Negative
- P value of <0.05 defines significant outcome
- Outcome assessment using the best evidence synthesis method (Slavin 1995)
  1. Strong evidence: Multiple, relevant high quality RCTs with generally consistent outcomes (GCO)
  2. Moderate evidence: One relevant high quality RCT and one or more relevant , low quality RCTs with GCO
  3. Limited evidence: One relevant , high quality RCT or multiple relevant, low quality RCTs with GCO
  4. Inconclusive evidence: Only one relevant , low quality RCT, no relevant RCTs or RCTs with inconsistent outcomes

- Results
- 2/3 of trials received a low quality rating
- Acupuncture compared to:
- No treatment : All had positive outcomes but were low quality. Limited evidence that acupuncture is more effective than no treatment. (Level 3)
- Physiologically inert control: Inconclusive evidence
- (Level 4)
- Sham acupuncture: Inconclusive evidence (Level 4)
- Standard Care: Inconclusive evidence (Level 4)
- Most of the high quality studies with positive findings pertain to musculoskeletal (MSK) pain
- Effectiveness of acupuncture for MSK pain appears promising

Conclusion

- Limited evidence that acupuncture is better than no treatment (waiting list)
- Premature at this time to draw conclusions about how effective acupuncture is compared to placebo, sham acupuncture, or standard care for the treatment of chronic pain

Limitations

- Only English literature
- Data not stratified in terms of patient's preference and expectations toward acupuncture

Suggestions for Future Research

- Positive outcomes associated with lower methodological quality
- Therefore, more high quality trials are needed to answer the effectiveness of acupuncture
- High quality studies cluster in the sham acupuncture control group with high sample size requirements, larger trials needed
- Standardized acupuncture procedure

Teasing Apart Quality and Validity in Systematic Reviews: (An Example From Acupuncture Trials in Chronic Neck and Back Pain Smith, Lesley; Et Al. Pain 2000 May; 86:119-132)

- Extensive Literature Search
- 13 randomized controlled trials
- 281 received acupuncture and 256 received placebo
- Control (Placebo) group includes those received sham acupuncture, sham TENS, no treatment, or on waiting list
- Oxford Pain Validity Score to determine quality of study.

- Results
- Generally low quality trials with a number of methodological flaws
- Trials with low validity scores were more likely to show a benefit of acupuncture whereas trials with positive scores were more likely to show no benefit of acupuncture over placebo
- No convincing evidence that acupuncture is more effective for the relief of back or neck pain

Acupuncture and Chronic Pain Management (Lee TL. Ann Acad Med Singapore 2000 Jan;29(1):17-21)

- Review is based on the result of previous reviews, meta-analyses, and consensus conference Search: MEDLINE (from 1966), EMBASE (from (1980) and Cochrane library (1999, Volume 1)
- Only randomized trials included
  Most of the studies were of poor methodological quality
  Need for further high quality randomized controlled trials

Randomized Trial of Acupuncture Compared with Conventional Massage and Sham Laser Acupuncture for Treatment of Chronic Neck Pain (Irnich, Dominik, et al British Medical Journal Volume 322 June 30, 2001)

- Prospective randomized , placebo controlled trial
- 177 participants with chronic neck pain
- Results: One week after five treatments the acupuncture group showed a significantly greater improvement in motion related pain compared with massage but not compared with sham laser.
- Conclusion: Acupuncture is an effective short-term treatment for patients with chronic neck pain, but there is only limited evidence for long-term effects after 5 treatments.

Acupuncture and chronic pain: (A criteria-based meta-analysis: ter Riet G, Kleijnen J, Knipschild P J Clin Epidemiol 1990;43(11):1191-1199)

- 51 controlled clinical studies
- Quality of even the better studies proved to be mediocre
- Efficacy of acupuncture in the treatment of chronic pain remains doubtful

<u>Limitations in General</u>

- Selecting appropriate controls
- Double blind research study
- Variability of acupuncture techniques

- Difficulty of standardizing acupuncture treatments
- Inadequate population size
- Significant variability in the response to treatments
- Use of a distinctive terminology
- Importance of practitioner's experience
- Use of short term and long term follow-up

Complementary Medicine

- Medline search
- Very few controlled trials
- No conclusive evidence that complementary medicine is better than standard treatment at this point

Points to Consider

- To refer, might be more valuable to know which patients are seen in the CM practice
- How they are treated
- Whether they are satisfied
- Their outcomes
- Rather than relying on the results of small scale, placebo-controlled randomized studies done in another continent with practitioners and populations quite different from those in the patient's community

Finding the Science in Art is the Art of Science

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