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**Acupuncture Significantly Reduces Anxiety and Depression in Persons with Dementia:
A Pilot Feasibility and Effectiveness Trial**

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Abstract:

Acupuncture, a core component of Traditional Chinese Medicine is an effective mode of treatment for many chronic ailments including depression, pain, addiction and stroke with virtually no side effects in competent hands. The Acupuncture Pilot Study for Persons with Dementia is the first study in the United States to examine acupuncture as a treatment for Alzheimer's Disease (AD) and Vascular Dementia (VD). Funded by the Helen Bader Foundation, the pilot study was conducted from 1997 to 1999 at Wellesley College's Center for Research on Women. The study, a small pilot with 11 treatment participants and no controls, demonstrated that acupuncture may be a feasible and effective treatment for depression and anxiety in Americans with AD or VD. All enrolled participants completed at least 22 acupuncture needling treatments and all required evaluations. Using paired sample t-tests, statistically significant improvements were found in three of the four scales used to assess acupuncture's effect on mood.

Background:

Acupuncture: What Is It?

- Acupuncture is a core component of Traditional Chinese Medicine; a healing art first developed over 3,000 years ago in China.
- Acupuncture is based on the theory that energy, or Qi (pronounced "chee"), must flow freely throughout the body for optimal health.
- Illness is seen as arising from imbalances in this energy such as qi "stagnation" or qi "deficiency".

What We Know about **Dementia** based on **Western Research**

- 70% of community-dwelling persons with ADRD have anxiety symptoms
- 54% have comorbid symptoms of anxiety and depression
- ADL functioning and behavioral problems are strongly correlated with anxiety and depression (Teri, et. al, 1999)

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What We Know about **Acupuncture** for **Cognitively Intact People**

- Effective in relieving depression (Allen, et. al., 1998)
- Effective in relieving anxiety (Dong, 1993)
- Effective in increasing blood flow to and within the brain (Naeser, 1997)

What We know about **Acupuncture** for Persons with **Dementia**

Chen, 1992 (N=11, no control)

- More effective with persons with vascular dementia than those with Alzheimer’s
- Improved cognition in some subjects with AD and VD
- Relieved depressive symptoms in some subjects with AD and VD
- Improved temperament of some subjects with AD and VD.
- Relieved about 1/2 cases of vertigo, tinnitus, and headache in persons with AD

Zhen-Ya, et al, 1999 (N=30, with control)

- 87% of treatment group showed 27% improvement on MMSE and 1grade improvement on GDS.
- There were no changes in the control group

Kao, et al, 2000 (N=8, no controls)

- MMSE significantly improved (overall, motor coordination, and verbal orientation)

After our study was published, only one medline entry was found for Alzheimer’s disease.

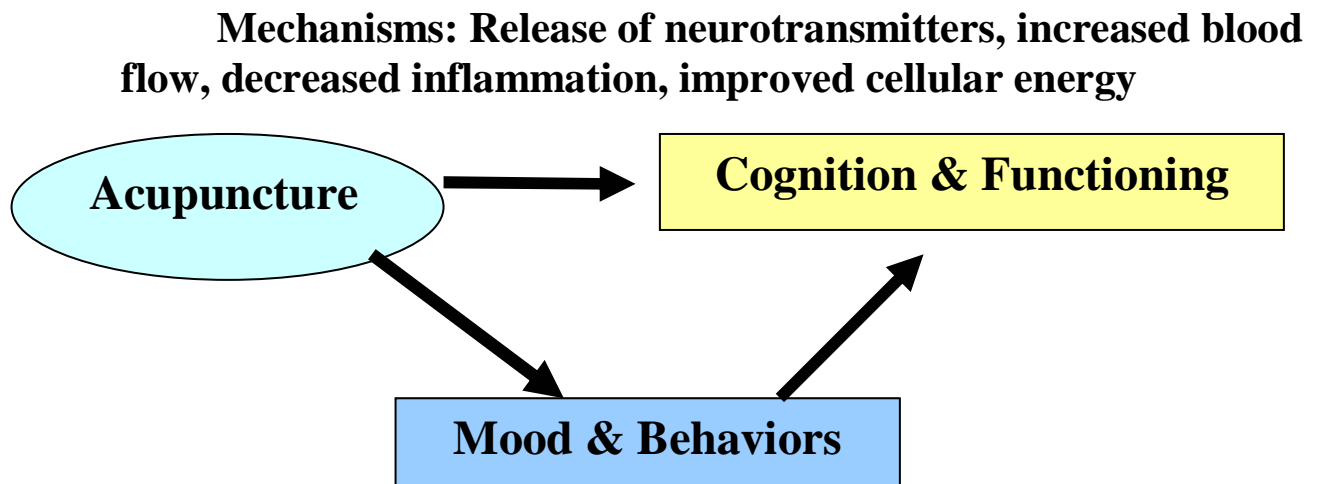
Guo Y, et al, (2002): In an open label study on the rehabilitation of cognitive function and short-term memory in patients with Alzheimer's disease using transcutaneous electrical nerve stimulation, improvements were seen in subjects in the TENS groups and the effects of treatment were more significant in mild AD patients than in severe AD patients.

Research Hypothesis:

Acupuncture can

- be an effective treatment modality for treating co-morbidities such as **anxiety, depression, insomnia, behavioral symptoms.**
- increase cognitive functioning (or slow the decline), self-care or ADL/IADL functioning.
- improve the participant’s quality of life and that of their caregivers.

Conceptual Model



Methods:

Participants (n=11)

Eligibility criteria included diagnosis of probable AD or VD, age of 55 or older, and baseline MMSE of 15 or greater, naïve to acupuncture. Excluded those with severe AD, poor health or bleeding issues.

Study Design

- 2-3 acupuncture treatments /week for 3 months (total of 22-26 treatments)
- Participants were assessed with established measures 3 times during the course of the study

Acupuncture Protocol

Acupuncture treatment protocol was devised by team of US and China trained acupuncturists. The team created a list of primary and secondary points.

- Primary acupoints: GB9, GV16, GV20, GV23, GV24, PC6, HT7, SP6, Sishengcong, and Yintang
- Secondary acupoints: ST36, LI4, GB20, GV17, SP4, KI3, SI3, BL62, BL23, GV26, and the cervical and thoracic Huato Jiaji points

Points Actually Used in Study by Acupuncturists:

Top 10 used points

GV20

KI3

ST36

Sishengcong

Yintang

SP6

HT7

Huato Jiaji points

GB 8 &9

GV23

Measures

Anxiety

- Profile of Mood Status (POMS)
- Spielberger State-Trait Anxiety Inventory (STAI)

Depression

- Geriatric Depression Scale (GDS)
- Cornell Scale for Depression in Dementia (CSDD)

Cognitive Impairment

- Mini-Mental Status Exam (MMSE)
- Controlled Oral Word Association Test (FAS)
- Boston Naming Test (BNT)

Mood, Vitality, Function, and Overall Health

- MOS 36-item Short Form Health Survey (SF-36)

Results:

Feasibility Outcomes

- All 11 participants remained in the study
- 82% were satisfied with the treatment results
- 64% reported that acupuncture was enjoyable
- Only three participants reported there was pain, but tolerable, during the treatment

Effectiveness Outcomes

- Anxiety - statistically significant improvement in both POMS and STAI
- Depression - statistically significant improvement in CSDD
- Cognition - No significant changes

Results of Paired T-Tests of Anxiety, Depression and Cognition (N=11)

	<i>Anxiety</i>		<i>Depression</i>		<i>Cognition</i>		
	POMS	STAI	CSDD	GDS	MMSE	BNT	FAS
Baseline Mean (S.D.)	8.8 (6.3)	49.5 (8.4)	6.4 (5.0)	7.4 (3.9)	21.9 (5.2)	37.5 (12.6)	25.4 (17.1)
PostTest Mean (S.D.)	4.6 (3.4)	40.1 (8.0)	3.1 (3.0)	6.7 (7.0)	21.3 (4.9)	36.1 (13.9)	25.5 (17.9)
p-value Paired T-test*	.050	.005	.011	.358	.646	.639	.968

Note: POMS = Profile of Mood State; STAI = Spielberger State-Trait Anxiety Inventory; CSDD = Cornell Scale for Depression in Dementia; GDS = Geriatric Depression Scale; MMSE = Mini Mental Status Exam; BNT = Boston Naming Test; FAS = Controlled Oral Word Association Test

*One-tailed test for mood (predicted improvement) , Two-tailed in cognition (no prediction).

- Mood, Vitality, Function, and Overall Health - Caregiver Report (but not Patient Self-report) indicated significant improvement in patients' vitality and anxiety (SF-36).

Mood And Vitality Subscales For SF-36 Caregiver Report (N=11)

	Vitality	Anxiety	Depression
Baseline mean (S.D.)	2.9 (1.2)	3.8 (.7)	4.2 (.7)
Posttest mean (S.D.)	3.6 (.9)	4.5 (.8)	4.3 (1.0)
p-value Paired t- Test (2-tailed)	.003	.006	.394

Note: Vitality-Four items averaged; range 1-6. Anxiety- two items averaged; range 1-6. Depression-Tree items averaged; range 1-6.

Conclusion:

All 11 participants, 10 with AD and 1 with VD, completed at least 22 treatments during the three month study. As we hypothesized the study indicated statistically significant improvements in the participants' depressive and anxious mood symptoms, confirmed with multiple measures, including the CSDD, the STAI, the POMS Tension subscale, and mood subscale from the MOS SF-36. Despite a small number of the participants, our data revealed robust outcomes. It is also encouraging that there was no significant cognitive decline. While results are promising, we need to keep in mind some limitations. As a phase I trial, there was no control arm. Thus, the observed positive effect of acupuncture on measures of anxiety and depression may be due to either the experience of being in a study, the positive interaction with the acupuncturist, or regression to the mean. The concomitant use of mood-altering medications, such as antidepressants and anti-anxiety drugs, could introduce potential confounding factors. Future studies should have tighter inclusion and exclusion criteria to achieve more reliable and robust results.