Stroke Self-management: Outcomes of a Randomized Controlled Pilot Trial

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Objectives

• Describe the Elements of our Stroke Self-Management Program

• Present Preliminary Results from a randomized controlled pilot study
Background

• Veterans with Stroke are at Risk for secondary strokes
• Secondary stroke prevention promoted as guideline care
• Lack of behavioral change strategies implemented to promote secondary stroke prevention
• Lack of clinical provider training
• Lack of designated responsibility for clinical staff
Development of Stroke Self-Management Program

- **Formative Developmental Evaluation**
  - Began with the Stanford Arthritis and Chronic Disease Self-Management format (Lorig et al)
  - Key informant survey of structure of patient education and self-management resources
  - Received stakeholder input and preferences
    - Stroke Survivors
    - Caregivers
    - Neurologists & General Internists
    - Nurses
Self-Efficacy Theoretical Concepts & Program Application

1. **Verbal Persuasions**
   - Staff explanations
   - Promotion of physician and therapeutic recommendations

2. **Social Modeling/Vicarious Experiences**
   - Staff demonstration of all strategies and new behaviors
   - Peers practice behavior in group meetings and share experiences vicariously (we learn by watching the outcomes of others’ behaviors)
   - View material of stroke patients similar to them

3. **Past Achievements**
   - Past failures may influence your current efforts
   - Set realistic, achievable goals
   - Gain an understanding of the course of stroke rehabilitation and realistic expectations
   - Tackle one stroke risk factor at a time

4. **Reinterpretation of Sensations/physical state**
   - Discuss symptoms and how to diminish
   - Distraction – Mental Imagery
   - Relaxation
Self-Management Menu – 6 sessions

- Expectations after stroke – What is normal?
- Negative/Positive thinking
- Addressing Fears
- Having Something to do
- Follow – Up Medical Visits
- Communication
  - Provider
  - Caregivers

- Adapting/coping with disabilities
- Finding a buddy
- Meds for Mood
- Move to improve Mood & Energy
- Community Resources
- Stroke Risk Factor Modification
Build Self-Efficacy-Each Session

- Goal Setting
- Behavioral Contracting
- Problem-solving
- Feedback
- Social Support
Goal Setting/Making a Plan

Parts of a Plan

• Something the stroke survivor wants to do
• Something the stroke survivor can accomplish over a few weeks
• Is behavior specific
• Answers the questions
  – What?
  – How long?
  – When?
  – How often?
• Survivor has the confidence level of 7 or more (where 0 means not confident at all & 10 means totally confident)
Secondary Stroke Prevention and Patient Self-Management

• Many Risk Factors
  – Multiple behavior change is challenging
  – We assess stroke risk factors in session 1
  – Try to help the patient negotiate with self to start with one risk factor
    ◆ Challenge
    ◆ Focus on one before moving on to another
    ◆ When to move onto next behavior
    ◆ Simultaneous preferences
# Behavioral Checklist

<table>
<thead>
<tr>
<th>Behavioral Strategies</th>
<th>Week 1</th>
<th></th>
<th>Week 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATE OF SESSION</strong>________</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used a pill box to keep track of medications</td>
<td></td>
<td></td>
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<tr>
<td>Took pills as my doctor recommended</td>
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<td></td>
<td></td>
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<tr>
<td>Became Active around the Home:________</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Practiced Exercises from the Exercise and Daily Activity Book</td>
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<td></td>
<td></td>
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<tr>
<td>Walked the dog</td>
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<tr>
<td>Walked in the community</td>
<td></td>
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<tr>
<td>Practiced Deep Breathing</td>
<td></td>
<td></td>
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<tr>
<td>Listened to Relaxation CD</td>
<td></td>
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<tr>
<td>Practiced Progressive Muscle Relaxation</td>
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<td></td>
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<tr>
<td>Practiced Changing Negative thoughts to Positive</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ate healthy foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eliminated unhealthy foods from diet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended Smoking Cessation classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used smoking cessation aides</td>
<td></td>
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</tbody>
</table>
Examples of Stroke Survivor plan – Specific and Small Steps

- I will walk 30 minutes after breakfast around my neighborhood or in the mall 3 days a week.
- I will measure my blood glucose once a day before breakfast in the bathroom.
- I will check my blood pressure once a week at 4 p.m. in my living room easy chair.
- I have a confidence level of 9.
Pilot: Patient Eligibility Criteria

- Hospitalized for ischemic stroke at 2 VA facilities: Indy and Gainsville
- No evidence of current substance abuse
- Not deemed terminally ill by physician
- Ability to speak English prior to discharge
- Ability to self-care prior to discharge
- Must have access to a telephone
Functioning

• Physical – must be able to self-care
• Cognitive -Screen with Short Portable Mental Status Questionnaire (SPMSQ)
• Dx of Dementia – pass SPMSQ then eligible
• Language Functioning
  – National Institutes of Health (NIH) Stroke Scale
  – Retrospective NIHSS
Design – PILOT RCT

Indianapolis VAMC
- Recruited 41 veterans hospitalized with ischemic stroke
  - 19 Intervention
  - 22 Attention Control

Gainesville VAMC
- Recruited 22 veterans hospitalized with ischemic stroke
  - 10 Intervention
  - 11 Attention Control
Methods

**INTERVENTION**
- Consent in hospital
- Baseline Assessment
- 6 Biweekly Telephone Sessions to foster stroke self-management
- Followed standardized manual
- 3 month interview
- 4.5 month booster call
- 6 month interview

**ATTENTION CONTROL**
- Consent in hospital
- Baseline Assessment
- 6 Biweekly Telephone Placebo calls – asked how pt was doing, referred questions to MD
- 3 month interview
- 4.5 month booster call
- 6 month interview
## PARTICIPANTS

<table>
<thead>
<tr>
<th>DEMOGRAPHICS</th>
<th>the</th>
<th>INTERVENTION (N=30)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>64 (SD =8.4)</td>
<td>67.3 (SD=12.4)</td>
<td>0.22</td>
</tr>
<tr>
<td>MALE</td>
<td>32 (97.0%)</td>
<td>30 (100%)</td>
<td>0.99</td>
</tr>
<tr>
<td>BLACK</td>
<td>7 (21.2%)</td>
<td>6 (20%)</td>
<td>0.31</td>
</tr>
<tr>
<td>WHITE</td>
<td>21 (63.6%)</td>
<td>23 (76.7%)</td>
<td></td>
</tr>
<tr>
<td>LIVES ALONE</td>
<td>11 (33.3%)</td>
<td>7 (23.3%)</td>
<td>0.46</td>
</tr>
<tr>
<td>NIH Stroke Scale (0-11 range)</td>
<td>3.33</td>
<td>3.27</td>
<td>0.93</td>
</tr>
</tbody>
</table>
SESSIONS DELIVERED

INTERVENTION (N=29)
• Mean # (SD) Sessions delivered = 5.0 (1.8)

ATTENTION CONTROL (N=33)
• Mean #(SD) Sessions delivered = 5.7 (0.98)
Developed Behavior Plan Per Self-Management Session

- Session 1 = 100%
- Session 2 = 89.6%
- Session 3 = 86.2%
- Session 4 = 75.8%
- Session 5 = 72.4%
- Session 6 = 72.4%
Frequently Reported Activities in Behavior Plans

<table>
<thead>
<tr>
<th>%</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>31%</td>
<td>Became active around the home</td>
</tr>
<tr>
<td>21.3%</td>
<td>Walked in the community</td>
</tr>
<tr>
<td>recommended</td>
<td></td>
</tr>
<tr>
<td>14.1%</td>
<td>Ate healthy foods</td>
</tr>
<tr>
<td>14%</td>
<td>Eliminated unhealthy foods</td>
</tr>
<tr>
<td>13.7%</td>
<td>Practiced other physical activity</td>
</tr>
<tr>
<td>10%</td>
<td>Listened to relaxation CD</td>
</tr>
<tr>
<td>8%</td>
<td>Practiced Rehab exercises</td>
</tr>
<tr>
<td>7.3%</td>
<td>Took pills as prescribed</td>
</tr>
</tbody>
</table>
Measurement Outcomes

- Self-efficacy to perform self-management behaviors (Lorig et al 96)
  - Present time perception
- Self-management behaviors (Lorig et al 96) during past week
- Stroke Specific QOL (Williams LS)
  - Ask about activities and feelings during past week.
Measurement Outcomes (Cont)

- **Process of Self-Management**
  - Behavioral checklists from 6 sessions
  - Fidelity checklist of session contents
  - Chart reviews of secondary stroke management clinical values during 6 months postdischarge (eg, bp, smoking cessation)
Analysis Plan

• Change from baseline to 3 and 6 months was modeled by a linear model with fixed effects for treatment, visit, and treatment x visit interaction, a random subject for repeated measurement, and adjustment for baseline score.

• Response at 3 months was carried forward for missing 6 month responses
Self-Efficacy: MD Communication

SELF-EFFICACY: MD COMMUNICATION

- **INTERVENTION**
- **ATTENTION CONTROL**

- Baseline
- 3 Months
- 6 Months
Self Management: Past Week Minutes Spent in Aerobics

Minutes Spent in Aerobic Activities

- **Intervention**
- **Attention Control**

![Graph showing the comparison between intervention and attention control for minutes spent in aerobic activities over time.](graph.png)
SSQOL: Family Roles

SSQOL: FAMILY ROLES

- Baseline
- 3 Months
- 6 Months
SSQOL: Social Roles

SSQOL: Social Roles

Baseline | 3 Months | 6 Months
---------|----------|----------
INTERVENTION

ATTENTION CONTROL
Limitations

- Small Sample - Limited statistical power
- Multicomponent intervention – difficult to untangle effects of each component
- Participants targeted different behaviors and risk factors
- Results are limited to veteran stroke survivors with the ability to self-care
A Telephone based stroke self management program is feasible for recently discharged patients with ischemic stroke.

A self-management format may be a venue for secondary stroke prevention.

We are reviewing postdischarge clinical data to evaluate reduction in risk factors.

Programs longer in duration may sustain initial changes.