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Can occupational therapy intervention focused on activities of daily living increase quality of life in people who have had a stroke?

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Can occupational therapy intervention focused on activities of daily living increase quality of life in people who have had a stroke?

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Pacific University MOT2

Date: December 5, 2008

CLINICAL SCENARIO: Quality of life has been described as a person's satisfaction with their life including their physical and mental health and independence according to one's own cultural beliefs and values. Stroke is the leading cause of long term disability in adults. A stroke can impact a person's quality of life by decreasing participation in functional and purposeful activity. Lack of participation in activity after stroke has been clinically observed due to decreased physical function, decreased cognitive function, communication problems and lack of self-satisfaction in the way person performs an activity. Depression is the most common neuropsychiatric consequence of stroke. Depression may also indicate decreased quality of life. Can increasing a person's ability to care for one’s self improve a person’s quality of life? Occupational therapy is an appropriate avenue to address this issue in a rehabilitative clinical setting.

FOCUSSED CLINICAL QUESTION: Can quality of life improve by increasing a person’s independence in activities of daily living (ADL) after stroke through occupational therapy intervention?

SUMMARY of Search ‘Best’ Evidence appraised, and Key Findings:

One level IIIb study was located and appraised:

Mayo, NE (2002). A cohort of 434 stroke patients were compared to a group of 486 controls to assess a person's quality of life after being discharged from inpatient rehabilitation. Interviews were conducted at 6 month intervals for two years. Results indicated that people with stroke who reported greater participation in community activities also reported an increased quality of life. Limitations included some participants dying or being transferred to long term care before the study concluded.

One level IIIc study was located and appraised:

Herrmann, N (1998). A cohort of 436 stroke patients were followed, assessed at baseline, 3 months and 12 months for depressive symptoms and functional measures. The study concluded that patients who were depressed were more likely to be female, have had a history of depression prior to stroke and a higher degree of impairment. 3 month depression scores were significantly correlated with
functional outcome at one year, suggesting a risk factor for poor prognosis after stroke. Many participants died or dropped out of the study before it concluded. Dropouts were due to being too disabled or ill, too cognitively impaired, too aphasic, relocating, refusing to participate or death.

One level IV study was located and appraised:
Gillen, G. (2006) A series of case studies that examined coping strategies of stroke patients during inpatient rehabilitation indicated that increased self efficacy may lead to decreased incidence of depression. This study was classified as exploratory in nature due to a small sample size.

Contributions of Qualitative Studies:
George, S. (2001) A phenomenological case study highlighting the experience of two people who had strokes. Themes that emerged represent areas to address in Occupational Therapy practice. Themes were: sense of control, loss of a sense of mastery, relating to people with a disability, and lack of education regarding emotional changes following a stroke. Due to the qualitative nature of the study, results cannot be generalized.

CLINICAL BOTTOM LINE: Preliminary data suggests that occupational therapy intervention using ADL is effective to improve functional performance and independence after stroke. Quality of life and independence in ADL are associated. Depression should be included as a measure of quality of life. Although there are risk factors that contribute to depression after stroke (being female, history of depression and severity of disability), increased independence in ADL, and participation in community activities and activities that increase self-efficacy may counteract the symptoms of depression and provide a means for intervention in OT following a stroke. All of which address quality of life issues. Overall, this is an area that needs further research to provide conclusive evidence.

Limitation of this CAT: This critically appraised topic has been reviewed once by one other independent person. The data search was not exhaustive and thus contains a limited amount of data.

SEARCH STRATEGY:

Terms used to guide Search Strategy:

- Patient/Client Group: CVA, stroke, infarction, depression, cerebrovascular accident
- Intervention: occupational therapy, activities of daily living
- Comparison: standard therapy, routine therapy
- Outcomes: independence, improved performance, increased self efficacy, increased quality of life
### Databases and sites searched

<table>
<thead>
<tr>
<th>Databases and sites searched</th>
<th>Search Terms</th>
<th>Limits used</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT Search</td>
<td>Kielhofner, infarction</td>
<td>OT-explode</td>
</tr>
<tr>
<td>PsychInfo</td>
<td>Stroke, current research</td>
<td>CVA- focus</td>
</tr>
<tr>
<td>Cochrane Database of Systematic Reviews</td>
<td>Stroke, depression, intervention</td>
<td>OT-explode</td>
</tr>
<tr>
<td>Google scholar</td>
<td>CVA, stroke, current research</td>
<td>humans, 2000-08, journal articles</td>
</tr>
<tr>
<td>Medline</td>
<td>Occupational therapy, quality of life, stroke</td>
<td>1998-2008</td>
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<tr>
<td>CINAHL</td>
<td>Occupational therapy, quality of life, stroke</td>
<td>2000-2008, journal articles</td>
</tr>
</tbody>
</table>

### INCLUSION and EXCLUSION CRITERIA

- **Inclusion:**
  - Articles that studied individuals post CVA
  - Articles that were available in full text
  - Articles that were available in English
  - Articles that discussed OT intervention

- **Exclusion:**
  - Articles published prior to 1998
  - Articles that studied interventions using medication
RESULTS OF SEARCH
A total of 217 articles were located and article titles were screened for obvious exclusion. Five titles were identified as relevant to answering the research question. They are highlighted below in Table 1.

Table 1: Summary of Study Designs of Articles retrieved

<table>
<thead>
<tr>
<th>Study Design/ Methodology of Articles Retrieved</th>
<th>Level</th>
<th>Number Located</th>
<th>Author (Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic review of randomized trials</td>
<td>I</td>
<td>0</td>
<td>-----</td>
</tr>
<tr>
<td>Individual RCT’s of good quality</td>
<td>II</td>
<td>0</td>
<td>-----</td>
</tr>
<tr>
<td>Quasi-experimental</td>
<td>IIIa</td>
<td>0</td>
<td>-----</td>
</tr>
<tr>
<td>Comparative studies w/ concurrent controls, allocation not randomised: Cohort, Case-control or interrupted time series control group</td>
<td>IIIb</td>
<td>1</td>
<td>Mayo (2002)</td>
</tr>
<tr>
<td>Comparative studies w/ historical control, two or more single-arm studies or interrupted time series w/o a control group</td>
<td>IIIc</td>
<td>1</td>
<td>Herrmann (1998)</td>
</tr>
<tr>
<td>Case series, single subject research design, pre/post test</td>
<td>IV</td>
<td>1</td>
<td>Gillen (2006)</td>
</tr>
<tr>
<td>Qualitative; phenomenological</td>
<td>N/A</td>
<td>1</td>
<td>George (2001)</td>
</tr>
</tbody>
</table>

BEST EVIDENCE
Four studies were identified as the ‘best’ evidence and selected for critical appraisal. Reasons for selecting this study were:

- Target population
- Met inclusion/exclusion criteria
- Described experience of phenomena

SUMMARY OF BEST EVIDENCE

Table 2: Description and appraisal of a comparative cohort study Mayo, Wood-Dauphinee, Cote, Durcan & Carlton (2002).

Aim/Objective of the Study/Systematic Review:
Mayo, NE (2002). This study began to investigate the impact of stroke on functioning and quality of life in order to identify services needed in the community by stroke...
survivors. It recognized the missing consideration of the emotional and social problems of people who have experienced a CVA.

**Study Design:**
This study was a comparative cohort design. Participants were recruited from ten acute care hospitals. A diagnosis was confirmed and survivors or their caregivers were approached during their hospital stay. People who agreed to participate were interviewed at six month intervals for two years after their acute care discharge. A control group of community dwelling individuals without stroke, matched by age and city district, were also recruited and followed. This group was sampled by a randomly computer generated telephone listing. Either the person with CVA or their caregiver was interviewed by telephone. People were excluded if they were discharged to long term care. Approximately 80% of all eligible stroke patients and 50% of all eligible controls completed the study. The authors stated the dropout rate was typical of the controls due to recruitment by phone. Stoke participants who dropped out died, or moved to long term care.

**Setting:** Participants where community dwelling individuals in Montreal, Canada.

**Participants:**
Total participants who completed an initial interview and another at 6 months: stroke N= 434, control N= 486
The stroke group included people who have had either ischemic or hemorrhagic stroke. The control group was matched to participants in the stroke group to detect the effects of aging. Mean age of stroke group was 68.8+/−12.5, control group was 61.7+/−12.4 Percentage of men and women in the stroke group was 56% and 44% respectively. For controls, 33% and 67% respectively.
Participants who dropped out due to death or discharge to long term care were more likely to be older (over 80 y.o.), have dysphagia at onset of stroke, and a longer mean length of stay in the acute care setting (39.8+/−82.9 days).

**Main Findings:**
The stroke group responded significantly lower in ADL functioning and community integration than the control group (reported by the Barthel Index and the Reintegration to Normal Living (RNL), respectively). The stroke group also reported a lower quality of life as measured by the SF-36. At six months post-stroke, 39% of survivors still had activity limitations in self care; limitations of self care were rare among controls. Failure to have a meaningful activity to fill the day occurred in 53% of the stroke patients. Reintegration into the community had the strongest association with the rating of quality of life. Ability to perform IADL independently was associated with quality of life. Stroke survivors who reported a high level of dependence in ADL also reported a lower quality of life.

**Original Authors’ Conclusions:**
People who had a stroke who reported greater participation in community activities also reported an increased quality of life. Almost 50% of community dwelling stroke population is living with sequelae of stroke and is at risk for decreased participation, activity level and social isolation that can result in further negative health events. A large portion also reported lack of meaningful activity, indicating a need for organized support groups for people with stroke.
Critical Appraisal:

Validity
Purpose of Study: The purpose of the study was stated clearly.
Background: A relevant literature review was cited and discussed at the beginning of the article.
Methodology: A comparative cohort study with a research group and a control group. Bias regarding selection of participants was reported by including descriptive data on those who did not participate or who dropped out. The control group in this study was younger than the stroke group, there were more women in the control group and they rated slightly better on health scores than the average Canadian population. Comorbid health problems in the stroke group differed from control group. The stroke group had greater risk factors for stroke (hypertension, cardiac disease and diabetes), but were similar in rates of arthritis and conditions affecting lungs and stomach. All participants were consented and study was approved by an external IRB.
Measurement Tools: All measures used in the study were reportedly well known and have reported reliability and validity for the constructs being measured in the study.
Results: Results were comparative in nature between the two groups. Much of the data was presented in descriptive form. Few inferential statistics were given; p-values were only reported for the relationship of activity and participation to quality of life. More p-values could have been included to validate differences between the groups. The group sizes were large enough to justify its calculation.
Clinical implications: No specific clinical data was reported, however, the study did recommend more community support groups for people post-stroke according to its findings to support the psycho-social consequences of stroke and its long-term effects.

Interpretation of Results
The greatest difference between the two groups was independence in ADL. Six months post-stroke, 39% of survivors still had activity limitations in self-care (bathing, dressing, grooming and feeding) and mobility, with more than 20% reporting difficulty in walking 50 meters and negotiating stairs. These difficulties were rare in the control group. For IADL, 54% of the stroke group had limitations in one or more areas (including: housework, shopping, travelling short distances and meal preparation). Whereas, this was true for less than 5% of the controls. These percentages describe specific areas of quality of life and potential intervention areas for occupational therapy. This study demonstrates an association between quality of life and independence in ADL and participation in IADL.

Summary/Conclusion:
Despite the limitations of this study, it provides a detailed description of the areas of need of people who live in the community post-stroke. The areas of need fall within the treatment scope of occupational therapy. It provides statistically relevant data linking quality of life and ADL activity, which could aid in prioritizing treatment interventions. However, more data is needed on specific types of interventions that promote the best outcomes following stroke. Replication of this data in the United States, for example, would be necessary to generalize the results to a treatment population in an OT’s region of practice.
IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH

In stroke rehabilitation literature, there is a considerable amount of data regarding physical functioning and its prognosis and intervention (George, 2001; Gillen, 2006; Herrmann, 1998; Mayo, 2002). However, this only one aspect of the sequelae of stroke. It is also one aspect of quality of life according to the World Health Organization’s International Classification of Functioning (www.cdc.gov). The IFC offers a comprehensive, transcultural definition of health and well-being and is widely accepted and cited as a definition of quality of life. Quality of life includes a person’s satisfaction in how they perceive themselves operating in the world. Currently, there is limited data regarding emotional and social problems of the stroke survivor or how to address it, besides the use of pharmaceuticals. Standard treatment of depression following stroke includes pharmaceutical intervention with unreliable outcomes (Cole, 2008). However, if pharmaceutical treatment is successful, remission of post-stroke depression is associated with improvement in independence in ADL (Narushima, 2003). This suggests that there is a relationship besides physical limitations involved in performance of ADL. There is also evidence that links post-stroke depression to falls and mortality (House, 2001). Left untreated, the outcome can be fatal.

A systematic review of occupational therapy intervention after stroke was reviewed, but was determined out of the scope of the research question presented here. There was insufficient data regarding measures of quality of life and/or depression included in the study. However, this study did conclude that patients who receive OT interventions are less likely to deteriorate and are more likely to have higher levels of independence in their ability to perform ADL (Legg, 2008).

Some lower levels of research exist that explore the topic of depression following stroke and it’s impact on functional recovery and quality of life (George, 2001; Gillen, 2006). They offer clinically applicable tactics for intervening with patients who present with depressive mood symptoms following stroke. George, Wilcock and Stanley (2001) reported four themes that emerged following a phenomenological case study of two people. The themes were: loss of control, loss of sense of mastery, importance of relating to people with a disability and a lack of intervention and education regarding emotional changes. Although this is not a higher level research design, there would be little harm in addressing these issues with patients.

Increased independence in ADL, participation in community activities and activities that increase self-efficacy, may improve quality of life and counteract the symptoms of depression. Understanding the association between these factors provides an aim for intervention in OT following a stroke. Overall, quality of life, including psycho-social sequelae following stroke, is an area that needs further research to provide conclusive evidence to guide sound practice.
REFERENCES


