The Rehabilitation of Younger Stroke Patients

Conclusions from:
Stroke Rehabilitation Evidence-Based Review (SREBR) 11th edition

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Stroke in Younger Patients

- Stroke is generally considered to be a condition that occurs in elderly individuals (Teasell et al. 2000)
- Stroke is relatively uncommon in patients under 50 years of age
- 3.7% of strokes occur before the age of 45
- 25.9% of strokes occur between 45 and 65 years of age

- Wide variety of definitions of ‘young stroke’

Young Stroke Etiology

- Wider variety of etiologies than older stroke cohorts
- Higher percentage of strokes with unknown diagnosis (Guercini et al. 2008)
- Uncommon etiology is more prevalent in those <35 years of age (Jacobs et al. 2002)
- Between 40-60 years, more likely to be diagnosed with early onset of an etiology more common to older patients i.e. atherosclerosis (Jacobs et al. 2002)
- Hemorrhagic strokes occur more frequently in younger populations with 30-35% of strokes under 50 years of age; 15-20% of strokes over 50 years of age (Ruiz-Sandoval et al. 2006)
Risk Factors

• The young stroke population has some unique risk factors:
  • Pregnancy and postpartum: usually attributed to preeclampsia or eclampsia (Feske 2007)
  • Oral contraceptive use: conflicting evidence, may a risk when paired with other risk factors (Buring 1996)
  • Cocaine and drug use: cocaine use = 6.5 times greater risk of stroke (Bruno 2003)
• Most common: hypertension, smoking, alcohol abuse, race (in black patients), migraine (in female patients), and hyperlipidemia (in those aged >35)
Young Stroke Rehabilitation

• Young stroke patients have unique rehabilitation needs (Dixon et al. 2007, Stone 2007)

• Rehabilitation of younger stroke patients is similar to older cohorts (Teasell et al. 2000)
Young Stroke Rehabilitation

- Rehabilitation priorities are often different between young patients and health care providers (Harte and Brashler 1994, Kersten et al. 2000)

<table>
<thead>
<tr>
<th>Patient’s rating</th>
<th>Physician’s rating</th>
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<tbody>
<tr>
<td>1) exercise/fitness programs</td>
<td>1) education/information programs</td>
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<tr>
<td>2) education/information programs</td>
<td>2) individual counseling</td>
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<tr>
<td>3) individual counseling</td>
<td>3) sexual adjustment counseling</td>
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<tr>
<td>4) stress management programs</td>
<td>4) vocational counseling</td>
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<tr>
<td>5) recreation/social programs</td>
<td>5) family counseling</td>
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</table>
Methods

• Systematic review of multiple databases
• English language publications from 1970-July 2008

• **Young stroke** defined as 18-60 years of age or any research self-identifying as studying **young stroke**

• 139 studies were identified
• Divided in 8 categories reflecting areas of research
# Studies Included

<table>
<thead>
<tr>
<th>Topic</th>
<th># of Studies</th>
<th>%</th>
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<tbody>
<tr>
<td>Incidence</td>
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<tr>
<td>Etiology / Risk Factors</td>
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<td>33.09</td>
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<tr>
<td>Recovery &amp; Prognosis</td>
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<td>17.99</td>
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<tr>
<td>Rehabilitation</td>
<td>9</td>
<td>6.47</td>
</tr>
<tr>
<td>Family Stress</td>
<td>12</td>
<td>8.63</td>
</tr>
<tr>
<td>Institutionalization</td>
<td>6</td>
<td>4.32</td>
</tr>
<tr>
<td>Return to Work</td>
<td>23</td>
<td>16.55</td>
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<tr>
<td>On-going Issues</td>
<td>4</td>
<td>2.88</td>
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<tr>
<td>Total</td>
<td>139</td>
<td>100</td>
</tr>
</tbody>
</table>
Recovery & Prognosis (25 studies)

Comparative studies (3):

- Falconer et al. 1994 USA
  - N=100 <65 years of age
- Marini et al. 2001 Italy
  - N=89 <45 years of age
- Black-Schaffer and Winston 2004 USA
  - N=162 <55 years of age
Recovery & Prognosis

Younger stroke patients:

• Better neurological and motor recovery (particularly in patients with moderately severe strokes)
  – Lack of coexisting medical problems and/or age-related cognitive impairments (Black-Shaffer and Winston 2004)
• Can tolerate more intense therapy
• Less institutionalization (>discharge home)
• Less likely to have require a paid caregiver
• Better long-term survival rates (1 & 3 months)

• Longer acute & rehabilitation stays (mean= 23 days)
Family & Relationship Stress (12 studies)

- A stroke can have a profound effect on the survivor and their entire family system (Palmer and Glass 2003)
- Family members often assume new responsibilities to cope with the disability of the stroke patient (Visser-Meily et al. 2005)
- Younger patients: resuming roles and role reversal

Marital Relationships  Children
Caregiver Issues     Dating & Sexuality
Marital Relationships

- Young stroke patients are likely involved in younger marriages or relationships also likely both employed
- Conflict with spouse is common:
  - Hospital staff reported 38% conflict with spouse, 1 in 7 couples separated 3 months post-stroke (Teasell et al. 2000)
- Marriage stress & spousal depression appear to be linked with initial quality of marital relationship and stroke severity (Visser-Meily et al. 2005)
- The spouse is often the primary caregiver (Sit et al. 2004)
Caregiver Issues

• Young patients generally need caregivers less than older cohorts. Caregivers may also be more readily available

• 25% of family caregivers under 65 either reduce the number of hours they spend at work or leave their employment (NFCA 2002 cited in Grant et al. 2004)

• With younger patients, caregivers may also have to care for children (Visser-Meily et al. 2005)
Caregiver Issues

• Children are not often the primary caregiver for younger stroke patients. This contrasts with 30% of older patients who have children as caregiver (Sit et al. 2004)

• Highest risk for depression: Caregiver spouses of younger, more severe stroke patients from lower household income with smaller social networks, and low levels of future optimism (Tompkins et al. 1988)
Children

- Children’s coping ability linked to spousal stress (Visser-Meily et al. 2005)
- Conflict with children is common in young stroke patients
  - Hospital staff reported 22% (Teasell et al. 2000)

Visser-Meily et al. 2005 (N= 77 children of young stroke patients)
- Extended hospital LOS resulted in children & spouse receiving more attention and support from hospital staff
- Staff did not pay more attention to children with adjustment problems
Dating & Sexuality

- Sexuality is important to young stroke survivors though often underestimated or simply ignored during rehabilitation

- Young stroke patients can have negative opinion of their personal value and sexual desirability

- Young stroke patients may view their disability as a barrier to creating or maintaining romantic relationships

(Murray and Harrison 2004)
Return to Work  (23 studies)

• Vocational issues are important and largely unique to young stroke survivors (Teasell et al. 2000)

• Few young stroke patients will return to previous or FT employment one year post-stroke even if physical disabilities are minimal (Glozier et al. 2008)

• Vocational rehabilitation strategies have not been studied
Return to Work

A review of studies reporting on return to work (Wozniak and Kittner 2002 USA) found:

- There is considerable variation in the definition of “work” ranging from a meaningful activity to FT or PT paid employment
- 9-91% of patients who return to work post-stroke
- 23-92% of patients who returned to work required adjustments (hour reduction, environmental change, task restructuring)
More Likely to Return to Work

- Younger age (Black-Schaffer and Osber 1990)
- Previous full-time paid employment (Glozier et al. 2008)
- Absence of psychiatric illness (Glozier et al. 2008)
- Higher education levels (Bergmann et al. 1991)
- White collar / managerial position (Vestling et al. 2003)
- Work involving more autonomy (Black-Schaffer and Lemieux 1994)
- Abstract reasoning skills (Weisbroth et al. 1971)
Less Likely to Return to Work

- Motor impairment (Fugl-Meyer et al. 1975)
- Residual muscle weakness (Saeki et al. 1993)
- Cognitive impairment (Kotila et al. 1989, Vestling et al. 2003)
- Memory deficits (Kotila et al. 1989)
- Emotional indifference/ lability (Kotila et al. 1989)
- Aphasia / Apraxia (Black-Schaffer & Osber 1990, Saeki et al. 1993)
- Depression (Kotila et al. 1989)
Ongoing Issues (4 Studies)

• Young stroke patients have fewer medical co-morbidities as compared with older survivors (Hindfelt and Nilsson 1992)

• Secondary prevention is important and often necessary (Hindfelt and Nilsson 1992)

• Psychosocial issues are more prominent for young stroke patients as they will likely live longer with disabilities (Stone 2007)
Ongoing Issues

Fatigue

• 51% of young patients were found to have post-stroke fatigue (Naess et al. 2005)

• This can affect scholastic, employment and social pursuits and become “an essential part of their lives” (Roding et al. 2003)
Ongoing Issues

Depression

- Similar incidences of post-stroke depression have been found in younger and older stroke patients (1/4 to 1/3) (Naess et al. 2005)

- However, mild depression was identified in 10% more young stroke patients (Naess et al. 2005)
Ongoing Issues

Coping & Connecting

• Young stroke patients are looking to connect with others who share similar experiences (Stone 2007)

• Counseling regarding romantic and sexual relationships, promoting self-acceptance and positive self-regard as well as social withdrawal is often needed for young stroke patients (Murray and Harrison 2004)

• Patients require time to come to terms with having a stroke in an often active stage of life and coping with changed physical abilities, work, family and social life (Stone 2005, 2007)
Summary

• Young stroke patients have unique needs

• Young stroke patients live longer with disabilities and have significant ongoing psychosocial issues

• Rehabilitation of younger stroke patients often does not address important return to work and sexuality issues
Thank-you!

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