Systematic Review on Amyotrophic Lateral Sclerosis

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Systematic Review Question

What is the effectiveness of interventions within the scope of occupational therapy practice for persons with Amyotrophic Lateral Sclerosis?

Additions to ALS Search Strategy

• Articles included prior to 2003
• Added later – palliative care, fatigue

Search results

14 Articles
Level I – 3
Level II – 3
Level III – 4
Level IV – 3
Level V - 1

Themes of evidence

• Exercise
• Assistive Devices/wheelchairs
• Multidisciplinary programs
• Palliative care
• Preparatory methods

Exercise

• Moderate evidence that a home exercise program of daily stretching and resistance exercise had higher ALSFRS and SF-36 physical functional scales scores and no adverse effects
  – Dal Bello Haas et al, 2007
### Exercise

- Limited evidence that individual exercise program to improve muscle endurance twice daily results in more functional activity and lower spasticity
- Both groups declined over time (Drony, et al., 2001 – Level I)
- Limited evidence that a supervised exercise program maintained a person’s functional capacity better than a home exercise program (Aksu, et al., 2002)
- Minimal evidence that aquatic therapy resulted in increased energy for participant, and less assistance needed for transfers (Johnson, 1988 – Level V)

### Assistive Devices/Wheelchairs

- Limited evidence that wheelchairs, particularly motorized allow for increased interaction in community
- No difference between motorized and manual for user characteristics
  - Controlling for overall disease symptom severity, arm and leg strength, bulbar function
- Greater level of satisfaction to improve activity level for motorized as compared to manual
- Greater satisfaction with manual for portability
- No difference for comfort and ease of maneuvering
- Positive – Supports (head, neck, trunk, extremities)
- Not positive – sling backs and sling seats

### Assistive Devices/Wheelchairs

<table>
<thead>
<tr>
<th>Limited evidence from a survey of power wheelchair (PWC) users</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 77% of respondents were satisfied with the overall comfort of their PWC</td>
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<tr>
<td>• 72% were satisfied with the ease of use</td>
</tr>
</tbody>
</table>

### Assistive Devices/Wheelchairs

<table>
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<th>Limited evidence from a systematic review:</th>
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<tbody>
<tr>
<td>• The use of telemedicine may be associated with high levels of satisfaction</td>
</tr>
<tr>
<td>Face-to-face was more highly valued for discussion of psychological and emotional concerns</td>
</tr>
</tbody>
</table>
  - (Foley, Timonen, & Hardiman, 2012) – Level I |

### Assistive Devices/Wheelchairs

- Used often/always with high satisfaction and usefulness
  - Elevated toilet seat, rails by toilet, shower seat, shower bars, slip-on shoes, ankle brace, transfer board
- Used infrequently/high satisfaction –
  - Sound or voice-activated environmental controls, communication boards
- Low satisfaction and not useful –
  - Button hooks, dressing stick, long-handled reaching tool
    - Gruis, Wren & Huggins, 2011 – Level III

### Assistive Devices/Wheelchairs

<table>
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<tr>
<th>Use of computer program to independently write messages and choose songs and videos through a virtual keyboard and microswitch.</th>
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<tr>
<td>• Participant wrote two messages per 20 minute session and chose songs and videos independently</td>
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</table>
  - Lanconi, et al, 2012 – Level IV |

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Multidisciplinary programs
- Limited to moderate evidence that those in multidisciplinary programs have longer survival than in general care
- Approximately 30%
  - Traynor, Alexander, Corr, Frost & Hardiman, 2003 – Level II

Palliative care
- Limited evidence that occupational therapy continues to be a part of care team for persons with ALS even immediately prior to death
  - Albert, Murphy, Del Bene, & Rowland, 1999 – Level II

Limitations
- Limited number of studies in systematic review
- Individual studies in review
  - Small sample sizes
  - Low level evidence
  - High dropout rate
  - Difficult to separate out the role of OT in a multidisciplinary program
  - No/minimal evidence in some areas – fatigue, occupation-based palliative care

Multidisciplinary Programs
- Limited evidence that those in multidisciplinary programs have:
  - Higher percentage of appropriate assistive devices
  - Higher quality of life in social functioning and mental health
  - No differences in physical functioning or quality of life for caregivers

Preparatory methods
- Minimal evidence that electrical stimulation improves bilateral hand function and knee extension over a period of three months

Implications
- The course of ALS provides unique opportunities for occupational therapy practitioners
  - Palliative vs. Rehabilitation
  - Environmental modifications
- Value for role of occupational therapy in multidisciplinary programs
  - Client-centered approach
  - Occupation-based intervention
Implications

• Providing client-centered care
  – Engaging in valued roles and occupations
  – Anticipating and planning for future needs
  – Connecting client with supports and resources

• Palliative Measures
  – Comfort and positioning
  – Individualized range of motion program

Implications

• Rehabilitation Measures
  – Increase or maintain independence (adaptive equipment, DME, etc.)
  – Educate patients, families, and caregivers
  – Recommendations for environmental modifications (home and work)

Implications

• What about the family?
  – Addressing needs of caregivers (physical, emotional, psychosocial, spiritual)
  – Considering the unique needs of children

• OT Roles with the ALS Population
  – Current: Traditional practice settings (acute care, home health, out-patient); hospice; multi-disciplinary clinics
  – Future: Educating hospice aides, community education about ALS, advocacy, research

Implications

• Research
  – Investigate impact of occupational therapy services on quality of life for patients and caregivers
  – Occupational therapy and management of fatigue