CURRENT CLINICAL PRACTICES IN HEMIPLEGIC REHABILITATION AMONG PHYSIOTHERAPIST IN INDIA

Code SCBR2
Introduction

• Physiotherapist have different perspective and practices in stroke rehab.
• This study was aimed at understanding the current physical therapy practices in stroke rehabilitation in the India.
• The insights gained from this study will be used in a future study aimed at understanding stroke rehabilitation practices across the nation.
Objective

• To understand the current clinical practices in stroke rehabilitation in India in following
  – Aim of treatment
  – Pertaining to tone
  – Facilitation of movement
  – Functional task training
  – Motor rehabilitation
  – Upper limb rehabilitation
  – Orthotics
  – Ambulation
Methodology

• Study Design: Cross sectional survey
• A survey questionnaire of 37-items was developed through literature review.
• These questions were sent to >1000 therapists who have treated stoke patients.
• Sample size: A total of 459 participant’s point of view was analysed for the study.
RESULTS
### Demographics

<table>
<thead>
<tr>
<th>Division</th>
<th>North</th>
<th>South</th>
<th>East</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>No’s of responses</td>
<td>72</td>
<td>178</td>
<td>47</td>
<td>156</td>
</tr>
</tbody>
</table>

#### No’s of subjects participated:

<table>
<thead>
<tr>
<th>Mph students</th>
<th>Practicing physiotherapists</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>52</td>
</tr>
</tbody>
</table>
# Aim of Treatment

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree (%)</th>
<th>Unsure (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-educate normal movement</td>
<td>99</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Facilitate Postural adjustment</td>
<td>97</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Facilitate adaptation to function</td>
<td>51</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Prevent secondary complications in neuromuscular function</td>
<td>96</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
## Pertaining to Tone

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree (%)</th>
<th>Unsure (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In patients with hypertonia, normalizing tone is important when facilitating movement.</td>
<td>66</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Practice of functional tasks may normalize patient’s tone and movement</td>
<td>93</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Inhibition of spasticity does not necessarily result in movement, movement needs to be facilitated.</td>
<td>44</td>
<td>53</td>
<td>2</td>
</tr>
</tbody>
</table>
### Facilitation of Movement

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree (%)</th>
<th>Unsure (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal stability is prerequisite of distal selective movement.</td>
<td>82</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Treating proximal stability will not necessarily result in recovery of distal movement in limb, distal movement needs to be facilitated</td>
<td>94</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Therapist’s role is to facilitate normal movement components.</td>
<td>86</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Stroke patients need hands-on training.</td>
<td>99</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stroke patients need task-oriented functional practice</td>
<td>99</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stroke patients need hands-on training and task-oriented functional</td>
<td>99</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Activating movements bilaterally helps to promote recovery on affected side</td>
<td>96</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
## Specific Questions in Motor Rehabilitation

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree (%)</th>
<th>Unsure (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In patients where potential for recovery of normal movement exists, therapists should delay performing certain activities if they are reinforcing abnormal movement patterns.</td>
<td>89</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Improving patient’s voluntary control does not necessarily improve patients ability to perform functional tasks</td>
<td>26</td>
<td>69</td>
<td>5</td>
</tr>
<tr>
<td>Intensive training of single-plane movement patterns can carry over into activities of daily living</td>
<td>22</td>
<td>63</td>
<td>14</td>
</tr>
</tbody>
</table>
### About motor rehabilitation

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree (%)</th>
<th>Unsure (%)</th>
<th>Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active assistive movement is useful in patients with muscle weakness.</td>
<td>98</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Patients presenting with limited active range of motion would begin with small amplitude movements.</td>
<td>94</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Passive range of motion is important for treatment.</td>
<td>83</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>
## Speed of movement

<table>
<thead>
<tr>
<th>Statement</th>
<th>Increase (%)</th>
<th>Remains constant (%)</th>
<th>Decrease (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In your opinion, what should be done to speed of movement for individuals with high tone? Velocity should</td>
<td>89</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>In your opinion, what should be done to speed of movement for individuals with low tone? Velocity should</td>
<td>8</td>
<td>89</td>
<td>2</td>
</tr>
</tbody>
</table>
Incorporation of concept of Motor Learning (No’s of subjects following research based practice)

<table>
<thead>
<tr>
<th>Options</th>
<th>Not sure</th>
<th>Not at all</th>
<th>Less frequently</th>
<th>Frequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of subject</td>
<td>2</td>
<td>16</td>
<td>72</td>
<td>9</td>
</tr>
</tbody>
</table>
Aspect most important in determining the progress of the patient

Graded acc to the most preferred

- Functional performance: 1
- Speed: 2
- Accuracy of movement: 3
- Strength of muscle: 4
- Number of repetitions: 5
Preferred stimulator for Hand Rehabilitation

% of subjects

- Biomove: 0%
- Mentamove: 1%
- FES: 9%
- NMES: 92%
Preferred Adjunct therapy

- Mod CIMT: 3%
- FES: 5%
- CIMT: 14%
- Mirror therapy: 95%
Preferred Orthosis for UL Rehabilitation

- Short cock up splint: 2, 8
- 3 point pressure splint: 2, 8
- Shoulder Sling: 25
- Pedi-wrap: 72, 88, 89

NUMBER OF THERAPIST
Preferred Orthosis for LL Rehabilitation

Supramalleolar Orthosis: 1
HKAFO: 2
Long knee brace: 3
FRO: 5
Shoe insert AFO: 6
KFO: 78
Static AFO: 89
Dynamic AFO: 90

NUMBER OF PHYSIOTHERAPIST
Preferred Management of Genu-recurvatum in hemiplegics

- Knee Cap: 1
- Scottish Knee Brace: 1
- Posterior knee taping: 3
- KAFO: 3
- Proprioceptive training: 7
- Floor reaction Orthosis: 11
- Long Knee Brace: 88
Do you believe in early ambulation in patients with VC grade 0?

88% Yes
11% No
Preferred assistive device used for ambulation

- Tone inhibiting splint: 5%
- Reflex inhibitory: 10%
- Taping: 16%
- Resting Splint: 19%
- Myofascial Release: 43%
- Cryotherapy: 73%
- PNF techniques: 91%
- Stretching: 93%
Therapeutic management used for spasticity

- Stretching: 93%
- PNF techniques: 91%
- Cryotherapy: 73%
- Myofascial Release: 43%
- Resting Splint: 19%
- Taping: 16%
- Reflex inhibitory...: 10%
- Tone inhibiting splint: 5%
Treatment for shoulder pain in stroke patients.

- MFR: 2
- Mobilization: 4
- Care givers training: 6
- MET: 11
- NMES: 12
- Shoulder sling: 60
- MET: 76
- NMES: 78
- Shoulder sling: 86
Conclusion

• More than 90% the physiotherapist had similar understanding about aim of treatment, tone management and neurotherapeutic approaches.

• More than 95% use NMES in hand rehabilitation along with functional tasks NMES.

• Shoulder sling is used the maximum in case of shoulder pain (86%) followed by heating modalities, NMES in hemiplegic shoulder.
Conclusion

• There was lot of variation about the upper and lower limb splints.
• Walker and cane is most frequently used ambulatory device.
• The most preferred lower limb orthosis was dynamic AFO and static AFO.
• Only 9% are doing research based practice which is a dangerous alarming sign.
Conclusion

• There was good understanding for the aims required to be set before treating the hemiplegic patients among physiotherapists.
• Less awareness was present about adjunct therapies, orthosis.
• Uncertainty was seen regarding tone and orthosis for ambulation of hemiplegics.
REFERENCES:
1. Rehabilitation; Panel; Glen E. Gresham, MD, Chair; David Alexander, MD; Duane S. Bishop, MD; Carol Giuliani, PhD, PT; Gary Goldberg, MD; Audrey Holland, PhD; Stroke. 1997; 28: 1522-1526 doi: 10.1161/01.STR.28.7.1522.
3. Basic Principles of the Neurodevelopmental Treatment; Tatjana Dolenc, Milivoj, Perat, Medicina 2005; 42(41):112-120.
4. Bobath Concept; Theory and Clinical Practice in Neurological Rehabilitation; pg 4
5. Painful Hemiplegic Shoulder; Evidence-Based Review of Stroke Rehabilitation; Swati Mehta PhD (cand.), Robert Teasell MD, Norine Foley MSc; 2013 Feb 5;80(6):528-32.
6. Neuromuscular Electrical Stimulation Improves Severe Hand Dysfunction for Individuals With Chronic Stroke: A Pilot Study; NMES Journal of Neurologic Physical Therapy; Santos, Marcio MS, PT2; Zahner, Laura H. PT1; McKiernan, Brian J. PT, PhD5; Mahnken, Jonathan D. PhD1,3; Quaney, Barbara PT, PhD1; December 2006 - Volume 30 - Issue 4 - p 175–183
7. A Pilot Study to Investigate the Effects of Electrical Stimulation on Recovery of Hand Function and Sensation in Subacute Stroke Patients; Neuromodulatio; Geraldine E. Mann MSc*; Jane H. Burridge PhD; L. J. Malone MSc ; P. W. Strike Mphil; 2005 Jul; 8(3):193-202
8. Mirror therapy for improving motor function after stroke; Stroke; Thieme H, Mehrholz J, Pohl M, Behrens J, Dohle C
11. The Effect of Prolonged Static and Cyclic Stretching on Ankle Joint Stiffness, Torque Relaxation, and Gait in People With Stroke; Physical Therapy September 2002 vol. 82 no. 9 880-887 Eadric Bressel and Peter J McNair.
12. Current clinical practices in stroke rehabilitation: Regional pilot survey, Pradeep Natarajan, PhD; Ashley Oelschlager, DPT; Arvin Agah, PhD; Patricia S. Pohl, PhD, PT; S. Omar Ahmad, PhD; Wen Liu, PhD, Department of Electrical Engineering and Computer Science, The University of Kansas, Lawrence, KS; Department Of Physical Therapy and Rehabilitation Science and Occupational Therapy Education, The University of Kansas, Medical Center, Kansas City, KS, Journal of Rehabilitation Research & Development Volume 45, Number 6, 2008 Pages 841-850.