

Usual Rehabilitation Programme

All patients will receive the usual rehabilitation with exercise therapy according to their impairments and recovery. The usual rehabilitation programme is consistent with the clinical guidelines for adult stroke rehabilitation published by the American Heart Association/American Stroke Association. The usual rehabilitation programme is administered by the multidisciplinary team including physiotherapist, occupational therapist and speech therapist. Each treatment is delivered by the same therapists with more than 5 years of working experience in stroke rehabilitation and familiarity with the treatment of PS. The usual rehabilitation lasts approximately for 4 hours daily on weekdays for 3 weeks. The usual rehabilitation programme includes:

1. Physiotherapy

Physiotherapy (administered by JZ) in the context of task-specific training with visual feedback consisting of:

- (1) bed and wheelchair mobility training;
- (2) bed-wheelchair transfer training;
- (3) sit-to-stand;
- (4) sitting and standing balance training;
- (5) pre-gait and gait training performed by robot-assisted treadmill training

2. Occupational therapy

Occupational therapy (administered by XM) in the context of task-specific training with visual feedback consist of:

- (1) task-oriented hand and upper limb training in which the tasks are graded to challenge individual capabilities, practised repeatedly and progressed in difficulty on a frequent basis;
- (2) activities of daily living and instrumental activities of daily living training tailored to individual needs and eventual discharge setting

3. Speech-language therapy

Speech-language therapy (administered by YL) includes:

- (1) physiological support for speech and target impairments in respiration, phonation, articulation, and resonance;
- (2) behavioural treatments including strategies to increase the precision of articulation, to modify the rate and loudness of speech, and to improve prosody;
- (3) augmentative and alternative communication devices such as simple picture boards or spelling boards;
- (4) supplemental strategies such as gesture or writing

4. Treatment of dysphagia

The management and treatment of dysphagia (administered by LW) includes:

- (1) swallowing exercises;
- (2) environmental modifications such as upright positioning for feeding;
- (3) safe swallowing advice and appropriate dietary modifications;
- (4) pharyngeal electric stimulation;
- (5) physical stimulation such as ice stimulation

5. Cognitive rehabilitation

Cognitive rehabilitation (administered by RZ) includes:

- (1) activities practice requiring attention;
- (2) planning or working memory with pencil and paper or computerized activities;
- (3) treatment of visual neglect;
- (4) executive functioning training;
- (5) teaching of compensatory strategies;
- (6) memory rehabilitation interventions:
 - a. for patients with mild memory impairments, memory strategy training, including the use of internalized strategies (eg, visual imagery, semantic organization or spaced practice) and external memory compensations (eg, notebooks, computers or other prompting devices), is recommended
 - b. for patients with severe memory deficits, errorless learning techniques and the use of external compensations, including assistive technology, with direct application to

functional activities is recommended