SPP-P7.4

Effects of Robot-assisted Arm Training for Promoting Motor Recovery in Patients After Stroke

Clare CYL, <u>Bryan CSH</u>, Poon MKM, Chan MMP, Luk HKY, Mak GHF, Lau PMY **Physiotherapy Department, Queen Elizabeth Hospital, KCC**



OBJECTIVE:

To evaluate the effects of robot-assisted arm training for promoting motor recovery in chronic stroke patients.

HA Convention 2013







OUTCOME MEASURES & RESULTS



Fugl-Meyer Motor Assessment of Upper Extremity



Robotic Kinetic & Kinematic Measures





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OUTCOME MEASURES & RESULTS

0.45

Post-training

Robotic Kinetic & Kinematic Measures

(①9.9%, *p*=0.003*)

Movement Smoothness

0.41

Pre-training

0.6

0.5

0.4

0.3

0.2

0.1

0

Movement smoothness

Joint Independence Measure

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Isometric Shoulder Force



DISCUSSION



- Robot-assisted arm training is effective to chronic stroke patient with low function.
- It provides subjects with the opportunity to engage in safe, well-supported range of motion & motor retraining exercises that leads to improving motor abilities in the paretic arm
- When appropriate training is given ⇒ Continue improvements in motor abilities are possible in persons more than 1 year post stroke
- This study served as a pilot test only. Further RCT pending.

CONCLUSION

Short-term, goal-directed robotic-arm training is an effective adjuvant for promoting motor recovery of the exercised limb segments after chronic stroke.
It improves movement smoothness and facilitates a better coordination between individual joint segments in daily functional performance.