Supplementary Information for

Critical Period After Stroke Study (CPASS): A Phase II Clinical Trial Testing an Optimal Time for Motor Recovery After Stroke in Humans

Alexander W. Dromerick^{1,a,b}, Shashwati Geed^{1,a,b}, Jessica Barth^{a,c}, Kathaleen Brady^a, Margot Giannetti^a, Abigail Mitchell^a, Matthew A. Edwardson^b, Ming T. Tan^b, Yizhao Zhou^b, Elissa L. Newport^{2b}, and Dorothy F. Edwards^d

Corresponding Author:

Elissa L. Newport, Ph.D.
Center for Brain Plasticity and Recovery
Georgetown University Medical Center
4000 Reservoir Rd. NW, Suite 145
Washington DC 200057
Email: eln10@georgetown.edu

Phone: 202-687-6824

This PDF file includes:

Figure S1 Table S1 SI References

^a MedStar National Rehabilitation Hospital, Washington, DC 20010;

^b Center for Brain Plasticity and Recovery, Department of Rehabilitation Medicine, Georgetown University Medical Center, Washington, DC 20057;

^c Washington University School of Medicine, St. Louis MO 63110;

^d University of Wisconsin-Madison School of Medicine and Public Health, Madison WI 53706.

¹ A.W.D. and S.G. contributed equally to this work.

² E.L.N. is the corresponding author

Figure S1. Mean ARAT scores (and standard errors) for each group at baseline, 6month, 12month, pretreatment, and post-treatment, shown at the average time at which the assessments occurred for the group.

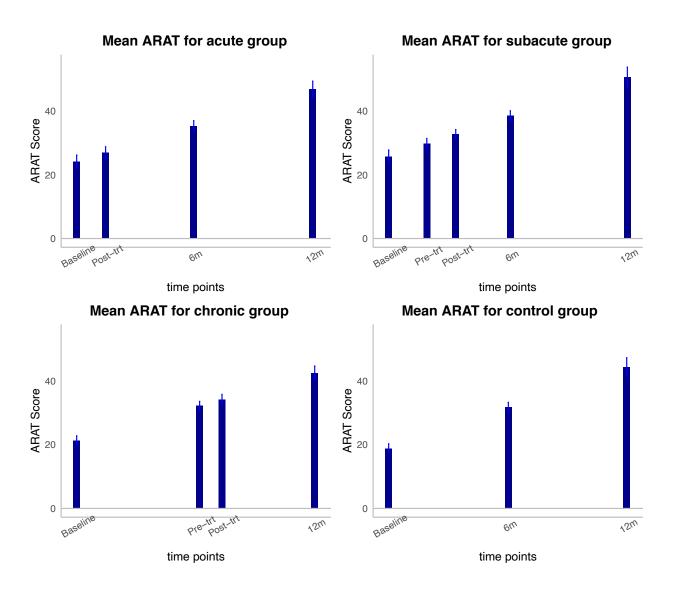


Figure S1. Mean ARAT scores (and standard errors) for each group at baseline, 6month, 12month, pretreatment, and post-treatment assessments, shown at the average time at which the assessments occurred for the group. Baseline, 6-month, and 12-month assessments occurred at approximately the same time after stroke for all groups. The control group underwent assessments only at these three timepoints. However, because the groups differed in when their intervention was administered, each group underwent their pre- and post-intervention assessments at different time-points during the study period. Baseline and pre-intervention assessment were the same for the acute group; pre-intervention and 6-month assessment were the same for the chronic group. The mean ARAT scores (and standard errors) are plotted at the study group's average day of assessment at each time-point.

Supplemental Table S1: Study measures and time points of administration

Measure	Domain	Baseline	Pretreat	Post-Treat	6 Months	12 Months
	Primary outcome a	and randomizat	tion			
Action Research Arm Test (1, 2)	Motor function limitation (performance)	х	х	x	x	х
Age	Covariate	х				
Oxfordshire classification (3)	Covariate (lesion type)	Х				
Edinburgh Inventory (4)	Covariate (handedness)	Х				
NIH Stroke Scale (5)	Stroke severity	X	Х	Х	Х	X
	Inclusion/excl	usion criteria		1	1	
Motor Assessment Scale (6)	limitation	х				
Manual Muscle Test (7)	Muscle strength and function	х				
Short Blessed Orientation Memory Concentration Test (8)	Dementia screen	х				
Mesulam Symbol Cancellation Test (9)	Visuospatial neglect	х				
Charlson Comorbidity Index (10)	Covariate (medical complexity)	х				
	Motor	· (UE)	'			
Nine-hole Peg Test (11)	Motor functional limitation	Х	Х	х	х	Х
Fugl-Meyer Upper Arm (12)	Motor functional limitation (performance)	х				х
Motricity Index (13)	Measure of motor loss	х	х	х	х	Х
	Self-R	Report				
Motor Activity Log (14)	Motor disability (self-report)		х	X	x	Х
Stroke Impact Scale-perception of change (15)	Stroke-specific quality of life	x	x	x		х
Stroke Impact Scale Hand-Arm subscale (15)	Stroke-specific quality of life	х	x	х		Х
	Handicap	and ADL				
Modified Rankin Scale (16)	Handicap/Global outcome	x (prestroke)	х	x		х
Functional Independence Measure (17)	ADL disability	х	x	х	х	х
Barthel Index (18)	ADL disability	Х	Х	х	х	Х
	Partici	pation				
Activity Card Sort (19)	Participation		Х	X	X	Х
Reintegration to Normal Living (20)	Participation			x	x	х
	Other/co	ovariate				
Geriatric Depression Scale (21)	Depression screen/covariate	х	x		х	х
Faces Scale (22)	Pain (visual analogue)	Х	Х	х	Х	Х
Medication Inventory (23)	Covariate (recovery- modifying drugs)	х	х	х	х	х

Table S1 presents the study measures, domain assessed, and timepoint administered. The table is organized to present measures first used for randomization and primary outcome, inclusion/exclusion criteria, UE motor assessment, self-report, assessment of ADL ability and global handicap, participation and other covariates. Reference numbers are presented with the measure name.

SI References

- 1. Yozbatiran N, Der-Yeghiaian L, & Cramer SC (2008) A Standardized Approach to Performing the Action Research Arm Test. *Neurorehabilitation and Neural Repair* 22(1):78-90.
- 2. Lyle (1981) A performance test for assessment of upper limb function in physical rehabilitation treatment and research. *International journal of rehabilitation research* 4(4).
- 3. Mead G, Lewis S, Wardlaw J, Dennis M, & Warlow C (2000) How well does the Oxfordshire Community Stroke Project classification predict the site and size of the infarct on brain imaging? *Journal of Neurology, Neurosurgery & Psychiatry* 68(5):558-562.
- 4. Oldfield RC (1971) The assessment and analysis of handedness: the Edinburgh inventory. *Neuropsychologia* 9(1):97-113.
- 5. Brott T, et al. (1989) Measurements of acute cerebral infarction: a clinical examination scale. Stroke 20(7):864-870.
- 6. Carr JH, Shepherd RB, Nordholm L, & Lynne D (1985) Investigation of a new motor assessment scale for stroke patients. *Physical therapy* 65(2):175-180.
- 7. DURBRIDGE TC, EDWARDS F, EDWARDS RG, & ATKINSON M (1976) An evaluation of multiphasic screening on admission to hospital: precis of a report to the National Health and Medical Research Council. *Medical Journal of Australia* 1(19):703-705.
- 8. Katzman R, et al. (1983) Validation of a short Orientation-Memory-Concentration Test of cognitive impairment. *The American journal of psychiatry*.
- 9. Mesulam M-M (1985) Dementia: its definition, differential diagnosis, and subtypes. *JAMA* 253(17):2559-2561.
- 10. Charlson ME, Pompei P, Ales KL, & MacKenzie CR (1987) A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *Journal of Clinical Epidemiology* 40(5):373-383.
- 11. Mathiowetz V, Volland G, Kashman N, & Weber K (1992) Nine hole peg test. *Measurement in Neurological Rehabilitation, ed DT Wade (New York, NY: Oxford University Press)* 171.
- 12. Fugl-Meyer AR, Jääskö L, Leyman I, Olsson S, & Steglind S (1975) The post-stroke hemiplegic patient. 1. a method for evaluation of physical performance. *Scandinavian Journal of Rehabilitation Medicine* 7(1):13-31.
- 13. Bohannon RW (1999) Motricity index scores are valid indicators of paretic upper extremity strength following stroke. *Journal of Physical Therapy Science* 11(2):59-61.
- 14. Uswatte G, Taub E, Morris D, Light K, & Thompson P (2006) The Motor Activity Log-28 assessing daily use of the hemiparetic arm after stroke. *Neurology* 67(7):1189-1194.
- 15. Duncan PW, et al. (1999) The stroke impact scale version 2.0: evaluation of reliability, validity, and sensitivity to change. *Stroke* 30(10):2131-2140.
- 16. Van Swieten J, Koudstaal P, Visser M, Schouten H, & Van Gijn J (1988) Interobserver agreement for the assessment of handicap in stroke patients. *Stroke* 19(5):604-607.
- 17. Granger CV, Cotter AC, Hamilton BB, & Fiedler RC (1993) Functional assessment scales: a study of persons after stroke. *Archives of physical medicine and rehabilitation* 74(2):133-138.
- 18. Shah S, Vanclay F, & Cooper B (1989) Improving the sensitivity of the Barthel Index for stroke rehabilitation. *Journal of clinical epidemiology* 42(8):703-709.
- 19. Baum C & Edwards D (2001) Activity card sort: test manual. *St Louis: Washington University School of Medicine*.
- 20. Stark SL, Edwards DF, Hollingsworth H, & Gray DB (2005) Validation of the reintegration to normal living indexin a population of community-dwelling people with mobility limitations. *Archives of physical medicine and rehabilitation* 86(2):344-345.
- 21. Yesavage JA (1988) Geriatric depression scale. *Psychopharmacol Bull* 24(4):709-711.

- 22. Wong DL & Baker CM (2001) Smiling face as anchor for pain intensity scales. *Pain* 89(2):295-297.
- 23. Orwig D, Brandt N, & Gruber-Baldini AL (2006) Medication management assessment for older adults in the community. *The Gerontologist* 46(5):661-668.