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## Audit of Stroke Care in a Sri Lankan Stroke Unit

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**Background and Rationale:** Data on quality of stroke care is limited from Sri Lanka, and available data suggests poor quality of care. We sought to evaluate quality of care in a Sri Lankan tertiary care centre using internationally accepted criteria.

**Methods:** All patients admitted with acute stroke to the Stroke Unit of the Colombo North Teaching Hospital, Ragama over a 2-year period (January 2015-December 2016) were prospectively enrolled. Stroke care was evaluated with the Stroke Foundation, Australia Acute Stroke Audit Tool.

**Results:** 156 patients were studied {54.5% males; mean age (SD) 59 years (9.3); 83.3% ischaemic stroke}. 92.3% were living with spouse/ family. Private transport was the mode of arrival in 87.8%. CT scanning was done in 92.2%. None of the patients received thrombolysis. 39.7% were functionally independent (mRS 0–2) at 7–10 days. 71.6% were discharged on anti-hypertensives. Of those with ischaemic stroke, 88.2% received anti-platelets and 95.5% statins. Swallowing screening was done in 92.5%, and formal swallowing assessment by a speech therapist in 52.6%. Assessment by a physiotherapist was done in 96.7%, occupational therapist in 85.8%, mental health specialist in 96.8%, and communication assessment by a speech therapist in 76.6%. Multi-disciplinary team met with care-givers in 83.1%. Care-giver needs assessment was done in 96.1%, and 90.3% of care-givers received training in home care. 52.6% were discharged home with rehabilitation support, and 32.1% were transferred for in-patient rehabilitation. All patients/care-givers received education before discharge, 96.1% received a community care plan, and 93.5% were given a discharge summary.

**Conclusion:** Quality of acute stroke care was satisfactory in almost all the domains studied. Care related to neuro-imaging, secondary preventive treatments, multi-disciplinary team assessment, provision of early rehabilitation services, patient education, care giver support and discharge planning was especially good. Stroke care of good quality is feasible even in resource-limited settings.

## Synergistic Effect of Combining MLC601 and Rehabilitation on Post-Stroke Recovery: The Chimes-E Study

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**Background and Rationale:** MLC601 has been shown to enhance natural neuro-repair mechanisms after stroke and may also facilitate rehabilitation-stimulated recovery processes. We aimed to assess the effect of MLC601 and concomitant rehabilitation on stroke recovery in the CHIMES-E study to test the hypotheses that there would be a synergistic effect.

**Methods:** The CHIMES-E study recruited 880 subjects aged  $\geq 18$  years with acute ischemic stroke (AIS), National Institute of Health Stroke Scale (NIHSS) 6–14, and pre-stroke modified Rankin Scale (mRS)  $\leq 1$  in a planned double-blind extension study of CHIMES trial with MLC601 or matching placebo given for 3 months in addition to standard stroke care and rehabilitation prescribed by the treating physicians. From Month (M) 3 to M24, mRS was compared between MLC601 and placebo.

**Results:** The study population had a mean age of  $61.8 \pm 11.3$  with 318 (36%) women. Data on rehabilitation and mRS at M3 were available in 807 (91.7%) subjects. Treatment groups were balanced in baseline characteristics except for NIHSS mean score being high-

er in the rehabilitation group (Rehab) ( $p = 0.013$ ). Stratification of subjects according to rehabilitation status (Rehab or NoRehab) showed a higher treatment effect of MLC601 on both mRS shift and dichotomy (0–1 vs. 2–6) from M3 to M24 in Rehab group, after adjusting for baseline differences and poorer prognosis factors. In the Rehab group, the adjusted odds of functional independence (mRS of  $\leq 1$ ) increased significantly over time in favor of MLC601 from M3 to M24, with the highest OR at M12 of 2.42 (1.53, 3.81).

**Conclusion:** Combining MLC601 and rehabilitation increases improvement of functional recovery over 2 years, supporting a synergistic effect on brain neuro-repair processes after AIS, with more subjects improving to functional independence compared to placebo.

### The Influence of Arterial Occlusion Location and Baseline Ischemic Core Volume on Outcome in Patients with Acute Ischemic Stroke

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**Background and Rationale:** There are limited studies directly comparing the relationship between arterial occlusion location, baseline ischemic core volume and the outcome of patients with acute ischemic stroke.

**Methods:** We analysed a prospectively collected cohort of ischemic stroke patient who underwent multimodal CT prior to treatment from the International Stroke Perfusion Imaging Registry (INSPIRE). The modified Rankin Scale (mRS) scores were used to assess day 90 clinical outcome. Baseline imaging was assessed to identify the location of a baseline occlusion and the baseline ischemic core volume. Logistic regression was used to compare the influence on baseline occlusion location and baseline ischemic core volume on 90 day outcome.

**Results:** A total of 1355 patients were analysed from the INSPIRE database. The volume of the baseline ischemic core varied significantly depending on the occlusion location (median core volume: ICA 41 mL, IQR 17–82.1; M1 19.8 mL, IQR 6.8–45.9; M2 10.7 mL, IQR 5–22.5; M3 4.3 mL, IQR 1.5–8.4; ACA 9.8 mL, IQR 4.8–14.5; PCA 4.4 mL, IQR 1–14.4,  $p < 0.001$ ). The rates of excellent outcome in patients differed significantly across vessel occlusion location (mRS0–1, ICA 20%, M1, 38%, M2: 55%, M3: 61%, ACA 44% and PCA 33%,  $p < 0.001$ ). Baseline occlusion location and ischemic core volume were significantly related to excellent 90 day outcome, with core having greater effect on the outcome (core: R-squared 0.10, AUC 0.70,  $p < 0.001$ ; location: R-squared 0.05, AUC 0.64,  $p < 0.001$ ). However, there was no sig-

nificant interaction between occlusion location and ischemic core volume (R-squared 0.11, AUC 0.71; interaction coefficient: 0.001,  $p = 0.6399$ ).

**Conclusion:** The rate of excellent outcome after stroke varies as a result the lesion occlusion location and varying baseline core volumes. However, the baseline core volume has a larger effect on patient outcome than does lesion location, and the core volume and lesion location are not significantly related, presumably due to other factors such as collateral circulation.

### Comparison of Long-Term Spontaneous Functional Recovery and Response to Treatment with MLC601 Between Cortical and Non-Cortical Strokes – The Chimes-E Study

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**Background and Rationale:** Cortical and subcortical strokes have dissimilar recovery patterns in response to interventions primarily because of anatomical and pathophysiological differences.