Using the full span of the SPAN-100 index to predict functional outcome in the CHIMES study

Dear editor,

The SPAN-[Stroke Prognostication using Age and National Institutes of Health Stroke Scale (NIHSS)]100 index is a prognostic tool for ischemic stroke calculated as age plus baseline NIHSS. In its original derivation, it was dichotomized at a threshold of 100. Patients who were SPAN-100-positive (≥100) had poorer outcome following intravenous thrombolysis compared with SPAN-100-negative (<100) patients (1,2).

One limitation of this dichotomy is the low proportion of patients with scores >100 (9·9% in National Institute of Neurological Disorders and Stroke, 10·5% in Virtual International Stroke Trials Archive). Patients less than 58 years old cannot achieve a SPAN-100-positive status even if they had maximum NIHSS score of 42. We aimed to study the relationship of SPAN-100 index as a continuous variable with functional outcomes measured by the modified Rankin score (mRS).

The Chinese Medicine NeuroAid Efficacy on Stroke Recovery (CHIMES) trial is a randomized, placebo-controlled study that investigated the efficacy of NeuroAid in improving functional outcome (3,4). We applied the SPAN-100 index to the placebo group of the CHIMES trial to evaluate its ability to predict mRS scores at month-3. The last-observation-carried-forward-method was used for missing data.

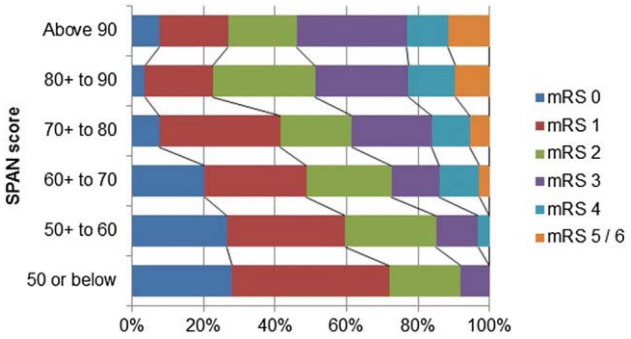

Fig. 1 SPAN-100 index score vs. mRS. mRS, modified Rankin Scale.

Of 1099 patients included in the CHIMES study, 1061 (97%) had mRS outcome at month-3 with mean age of 61·4 ± 11·3 years. A total of 531 out of 549 patients (97%) in the placebo group had month-3 data. Only one patient was SPAN-100-positive. There was a positive correlation between SPAN-100 index and month-3 mRS (Spearman correlation coefficient $r^2 = 0{\cdot}316$, $P \leq 0{\cdot}001$). Figure 1 shows the shift across the range of mRS as the SPAN-100 score increases.

Our study shows that the SPAN-100 index can predict functional outcome following ischemic stroke across its spectrum. This finding implies a potential utility of the SPAN-100 index beyond dichotomization, particularly among patients with scores below 100, in predicting prognosis, benefits, and risks of treatment, including intravenous thrombolysis. These results need confirmation in larger cohorts.

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Conflict of interest: The CHIMES study was supported by the CHIMES Society and grants received by CLHC from the National Medical Research Council of Singapore (NMRC/1288/2011 and NMRC/1096/2006). The authors received funding for the trial and accommodation and transportation support for meetings from the CHIMES Society. Moleac (Singapore) provided grants to the CHIMES Society of which the society had sole discretion on use.

DOI: 10.1111/ijs.12405

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