

ABSTRACT

Background of the study: The disability of patients with ischemic stroke still remains a high percentage. The prognosis after ischemic stroke can be predicted by using a scoring system. By doing so, the score prediction will help doctors to make the right decision in assessing the condition of patients with ischemic stroke as well as in determining their prognosis. The existing scoring system for predicting the clinical disability of ischemic stroke has limitations and sometimes it is not appropriate to be implemented in Indonesia.

Purpose of the study: The aim of this study is develop a scoring system from disability risk factors in ischemic stroke patients.

Method: This study was a retrospective cohort study. The samples used were collected from the stroke registry and medical records of Bethesda Hospital Yogyakarta started from 30 December 2019 to 30 November 2020. The data were analysed by using univariate, bivariate and multivariate logistic regression analysis with the backward stepwise method. The Receiver-Operating Characteristic (ROC) curve was used to test the validity and the Area Under the Curve (AUC) was used to determine the cut-off point. The thirty days after the patients were admitted as ischemic stroke and the disability clinical outcomes can be measured by using the Modified Rankin Scale (mRS).

Results: The number of patients with ischemic stroke who met the inclusion criteria were 158. Five strong predictors can be undertaken into the final model of multivariate analysis. They were age >70 years, NIHSS ≥ 7 , aphasia, leukocytosis and Urinary Tract Infection (UTI) complications. From the results of the scoring system, the score of each predictor variable of age and NIHSS was 2. The score of each predictor variable of aphasia, leukocytosis, and complications of UTI was 1. The lowest score was 0 and the highest score was 7. The probability in the scoring system was 2 to 92%, depending on the improvement of the score value. Overall, it can be said that this model had good quality with the value of AUC lied in 0.845 (IK95% 0.761-0.929, $p < 0.001$). From the statistical results of the Hosmer-Lemeshow test (HL test), the calibration score was considered as good with the $p=0.693$.

Conclusion: The score consisted of age >70 years old, NIHSS ≥ 7 , aphasia, leukocytosis, and UTI complications. The predictor score of disability in this study had a good accuracy to predict the prognosis of stroke patients.

Keywords: *Ischemic stroke, prognosis, outcome, disability*

INTISARI

Latar Belakang: Disabilitas pasien stroke iskemik masih tinggi. Prognosis setelah stroke iskemik dapat diprediksi menggunakan sistem skoring. Skor dapat membantu dokter untuk menilai kondisi pasien dan kemungkinan prognosis pasien sehingga dapat membuat keputusan yang tepat. Skor prediktor klinis disabilitas stroke iskemik yang ada masih memiliki keterbatasan dan belum tentu dapat diterapkan di Indonesia.

Tujuan: untuk mengembangkan sistem skoring dari faktor-faktor prediktor terhadap disabilitas pada pasien stroke iskemik.

Metode: penelitian ini merupakan studi kohort retrospektif. Sampel diperoleh dari *stroke registry* dan rekam medis dari Rumah Sakit Bethesda Yogyakarta pada 30 Desember 2019 sampai 30 November 2020. Data dianalisis menggunakan analisis univariat, bivariat dan regresi logistik multivariat dengan metode *backward stepwise*. Uji validitas menggunakan kurva *Receiver-Operating Characteristic (ROC)* sedangkan untuk *cut-off point* menggunakan *Area Under the Curve (AUC)*. Luaran klinis disabilitas diukur setelah 30 hari passaserangan stroke iskemik menggunakan skala Rankin yang dimodifikasi (mRS).

Hasil: Pasien stroke iskemik yang memenuhi kriteria inklusi 158 pasien. Terdapat 5 prediktor kuat yang masuk kedalam final model multivariat yakni usia tua >70 tahun, NIHSS ≥ 7 , afasia, leukositosis, dan komplikasi infeksi saluran kencing. Variabel prediktor usia tua >70 tahun dan NIHSS ≥ 7 memiliki nilai 2 dalam sistem skoring. Variabel prediktor afasia, leukositosis, dan komplikasi ISK masing-masing memiliki nilai 1. Skor terendah memiliki nilai 0 dan yang paling tinggi dengan nilai 7. Probabilitas dalam sistem skoring sebesar 2 sampai 92% seiring dengan peningkatan nilai skor. Secara kualitas model ini memiliki kualitas yang baik dengan nilai diskriminasi AUC sebesar 0.845 (IK95% 0.761-0.929, $p < 0.001$) dan nilai kalibrasi 0.693 dalam uji *Hosmer and lemeshow*.

Kesimpulan: Komponen skor yang dikembangkan terdiri dari usia tua >70 tahun, NIHSS ≥ 7 , afasia, leukositosis, dan komplikasi ISK. Skor prediktor disabilitas memiliki kualitas yang baik dan dapat digunakan untuk menilai prognosis pasien stroke iskemik.

Kata Kunci: *Stroke iskemik, prognosis, outcome, disabilitas*