Skoring Prediktor Keberhasilan Tindakan Trombektomi Mekanik di Dua Rumah Sakit Rujukan Nasional: RSUPN Cipto Mangunkusumo dan RSPON Mahar Mardjono Jakarta Tahun 2017-2025 (Studi Mixed-Methods Sequential Explanatory)

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Abstrak

Trombektomi mekanik telah menjadi standar tata laksana stroke iskemik akut akibat oklusi pembuluh darah besar, namun belum tersedia sistem skoring prediktor luaran 90 hari yang dikembangkan dan divalidasi di Indonesia. Pengembangan sistem skoring nasional perlu mempertimbangkan baik faktor klinis individu maupun konteks sistem layanan stroke akut. Penelitian ini bertujuan untuk mengembangkan sistem skoring prediktor keberhasilan trombektomi mekanik hari ke-90 yang merefleksikan determinan multilapis di Indonesia. Penelitian ini menggunakan desain mixed-methods sequential explanatory di dua rumah sakit rujukan nasional (RSUPN Cipto Mangunkusumo dan RSPON Mahar Mardjono) periode 2017–2025. Fase kuantitatif menggunakan kohort retrospektif berbasis rekam medis (n=234) dengan analisis Cox regression backward stepwise dan pengembangan sistem skoring. Fase kualitatif menggunakan studi kasus ganda dengan empat sesi Focus Group Discussion (FGD) dan mini-FGD yang melibatkan 48 peserta klinis multidisiplin (kelompok IGD dan kelompok Operator). Analisis kualitatif menggunakan framework analysis dengan keabsahan dijaga melalui kriteria trustworthiness. Hasil luaran fungsional baik (mRS 0–3) hari ke-90 dicapai 47% subjek dengan mortalitas 21,8%. Analisis multivariat mengidentifikasi delapan prediktor independen yang dikonversi menjadi sistem skoring 0–148 poin: jenis kelamin laki-laki, ASPECTS >6, alat stent, rekanalisasi mTICI 2B–3, tidak transformasi perdarahan, tidak transformasi malignan, tidak pneumonia, dan tidak gangguan ginjal akut. Sistem skoring memiliki diskriminasi baik (apparent AUC 0,769; 95% CI 0,710–0,828; optimism-corrected AUC 0,739) dan kalibrasi baik (Hosmer-Lemeshow p=0,681). Pada cut-off 120 (Youden Index 0,426), didapatkan sensitivitas 70% dan spesifisitas 72,6%, dengan post-test probability 69% pada skor ≥120 dan 26% pada skor<hr /> Mechanical thrombectomy has become standard of care for acute ischemic stroke due to large-vessel occlusion, but no Indonesian-developed and validated 90-day outcome prediction score is currently available. National score development must consider both individual clinical factors and the broader acute stroke service system context. To develop a prediction score for 90-day mechanical thrombectomy success that reflects multi-layered determinants in the Indonesian setting. This study used a sequential explanatory mixed-methods design at two national referral hospitals (RSUPN Cipto Mangunkusumo and the National Brain Center Hospital Mahar Mardjono, Jakarta) from 2017 to 2025. The quantitative phase used a retrospective medical-record cohort (n=234) with Cox regression backward stepwise analysis and score development. The qualitative phase used a multiple case study design (Yin, 2018) with four group-discussion sessions (FGD and mini-FGD) involving 48 multidisciplinary clinical participants (Emergency Department and Operator groups). Qualitative analysis used framework analysis with trustworthiness ensured through Lincoln & Guba's four criteria. Good functional outcome (mRS 0–3) at 90 days was achieved in 47% of subjects, with 21.8% mortality. Multivariate analysis identified eight independent predictors converted into a

0–148-point score: male sex, ASPECTS >6, stent device, mTICI 2B–3 recanalization, absence of hemorrhagic transformation, absence of malignant transformation, absence of pneumonia, and absence of acute kidney injury. The score showed good discrimination (apparent AUC 0.769; 95% CI 0.710–0.828; optimism-corrected AUC 0.739) and calibration (Hosmer-Lemeshow p=0.681). At the 120 cut-off (Youden Index 0.426), sensitivity was 70% and specificity 72.6%, with post-test probability of 69% at scores ≥120 and 26% at scores