Supplementary Methods

Statistical methods

An imputation procedure was performed under the missing at random assumption considering all covariates listed in Supplementary Table 1, and also applied in the distribution of the modified Rankin Scale (mRS) scores at 90 days. We performed multiple imputation by chained equations with predictive mean matching methods for continuous variables and ordered or binary logistic regression models for categorical variables to generate 10 complete datasets. All analyses were performed in each dataset separately and the coefficients were combined by Rubins' rules to create the final estimates.[1]

Generalized estimating equations were used to account for within-center clustering. A model with the robust sandwich variance was used to compare the dichotomous outcomes: the Poisson distribution and log link function were used to estimate the relative risk and the Gaussian distribution and identity link function were used to estimate the risk difference and mean difference. For the relation between time from basilar artery occlusion (BAO) onset to hospital arrival and distributions of the mRS scores at 90 days, we used multivariable ordinal logistic regression analysis (a proportional odds model) to calculate the adjusted common odds ratio (acOR) for a shift in direction towards a better functional outcome on the mRS for endovascular treatment (EVT) and best medical management (BMM) than for BMM alone.

For the relation between time from BAO onset to hospital arrival and EVT effect, we entered an interaction term into the model to test for interaction between treatment and the prespecified time from BAO onset to hospital arrival subgroups: <6 hours versus ≥6–12 hours versus ≥12–24 hours (as a categorical variable). Furthermore, we tested for the interaction between treatment allocation and time from BAO onset to hospital arrival (as a continuous variable) for optimal statistical power.

The relationships between BAO onset to hospital arrival time and the outcomes were also assessed with restricted cubic splines of BAO onset to hospital arrival time with knots at the 5th, 35th, 65th, and 95th percentiles. To generate time-benefit curves, outcome-specific predicted probabilities for each value of BAO onset to hospital arrival within the observed range were computed while setting all other variables in the model to mean values. Wald χ^2 tests were used to assess the nonlinearity of the relationship.

We adjusted the acOR and all secondary effect parameters for age, baseline National Institutes of Health Stroke Scale (NIHSS), level of occlusion site, posterior circulation Alberta Stroke Program Early Computed Tomography Score (pc-ASPECTS) score, intravenous thrombolysis, history of atrial fibrillation, and diabetes mellitus.

All statistical tests were 2-sided, with *P* values less than 0.05 considered statistically significant. Statistical analyses were conducted in Stata version 17.0 (StataCorp., College Station, TX, USA) and R version 4.0.2 (R Foundation for Statistical Computing, Vienna, Austria).

Supplementary Reference

1. Rubin DB. Multiple Imputation for Nonresponse in Surveys. New York: Wiley, 1987.