Supplemental Material

Clot-Based Radiomics Predict a Mechanical Thrombectomy Strategy for Successful Recanalization in Acute Ischemic Stroke

Jeremy Hofmeister, Gianmarco Bernava, Andrea Rosi, Maria Isabel Vargas, Emmanuel Carrera, Xavier Montet, Simon Burgermeister, Pierre-Alexandre Poletti, Alexandra Platon, Karl-Olof Lovblad, Paolo Machi

Supplementary Table I: The Radiomics Quality Score (RQS)

Supplementary Table II: TRIPOD Checklist: Prediction Model Development and Validation

Supplementary Table I: The Radiomics Quality Score (RQS)

	Comments				
1	Imaging protocol is documented but NCCT images are not publicly available, due to IRB constrains.				
2	No segmentation or robustness to segmentation variabilities realized				
3	Not phantom study realized.				
4	No imaging at multiple time point: only pre-therapeutic NCCT were used in our analysis.				
5	Univariate feature selection of RF performed on the training cohort.				
6	No multivariable analysis with non-radiomic features: Only imaging features were used in the current model.				
7	RF selected are related to the literature in the discussion section.				
8	Results are reported on the independent validation cohort, along with their 95% confidence interval, to reduce the risk of overfitting and reporting overly optimistic results.				
9	We report discrimination statistics, notably AUC of ROC curve, along with their 95% confidence interval. We also used cross-validation in the development of the model.				
10	Calibration statistics are reported on the training cohort, along with their 95% confidence interval. Resampling method using Nested-CV was used in model development.				
11	Our study was not prospectively registered in a trial database.	0			
12	Validation is based on an independent dataset from the same institute.	2			
13	Our classification is compared to a gold standard, the mTICI score on angiography.	2			
14	The clinical utility includes the reduction of time to successful reperfusion, the reduction in number of MTB attempts and the potential reduction of procedural complications.	2			
15	Cost-effectiveness analysis was not done in this study.				
16	The RF are defined and publically available via pyradiomics. The model and its weights will be made available upon acceptance of the paper.				
	Total points of this study				

Supplementary Table II: TRIPOD Checklist: Prediction Model Development and Validation



Title and abstract Title 1 D:V Identify the study as developing and/or validating a multivariable prediction model, the target population, and the outcome to be predicted. 1 Abstract 2 D:V Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions. 2 Background and objectives 3a D:V Explain the medical context (including whether diagnostic or prognostic) and rationale for developing or validating the multivariable prediction model, including references to existing models. 3 Background and objectives 3b D:V Specify the objectives, including whether the study describes the development or validation of the model or both. 4 Wethods New Describe the study design or source of data (e.g., randomized trial, cohort, or registry data), separately for the development and validating data sets; if applicable. 5 Source of data 4a D:V Describe the study design or source of data (e.g., randomized trial, cohort, or registry data), separately including number and location of centres. 5 Bo:V Describe the study design or source of data (e.g., randomized crial, end, if applicable, end of follow-up. 5 D:V Describe the study seting (e.g., primary care, secondary care, general population)	Section			Checklist Item	Page				
Title1D:VIdentify the study as developing and/or validating a multivariable prediction model, the target1Abstract2D:VProvide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.2Background and objectives3aD:VExplain the medical context (including whether diagnostic or prognostic) and rationale for developing or model, including the multivariable prediction model, including references to existing models.3Background and objectives3aD:VSpecify the objectives, including whether the study describes the development or validation of the model or both.4Source of data4aD:VSpecify the edvelopment and validation data sets, if applicable.5Source of data5aD:VSpecify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of entres.5Participants5aD:VDescribe eligibility criteria for participants.55bD:VDescribe eligibility criteria for participants.56aD:VClearly define the outcome that is prediction model, including how and when assessed.6.77aD:VReport any actions to blind assessment of the outcome to be predictors.5Statistical analysis9D:VReport any actions to blind assessment of predictors for the outcome and other predictors.5Statistical analysis9D:VReport any actions to blind assessment of predictors for the outcome conclusing any predictor selection), and method <t< td=""><td colspan="8">Title and abstract</td></t<>	Title and abstract								
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Participants 13b D:V Describe the characteristics of the participants (basic demographics, clinical features, available Tab	Participants	13b	D;V	Describe the characteristics of the participants (basic demographics, clinical features, available	Tab 2				
For validation, show a comparison with the development data of the distribution of important variables	1			For validation, show a comparison with the development data of the distribution of important variables					
13c V I of variation, show a comparison with the development data of the distribution of important variables NA		13c	V	(demographics, predictors and outcome).	NA				
Model 14a D Specify the number of participants and outcome events in each analysis. 8-9	Model	14a	D	Specify the number of participants and outcome events in each analysis.	8-9				
development 14b D If done, report the unadjusted association between each candidate predictor and outcome.	development	14b	D	If done, report the unadjusted association between each candidate predictor and outcome.	Fig 3				
Model 15a D Present the full prediction model to allow predictions for individuals (i.e., all regression coefficients, NA	Model	15a	D	Present the full prediction model to allow predictions for individuals (i.e., all regression coefficients, and model intercent or baseline survival at a given time point)	NA				
specification 15b D Explain how to the use the prediction model.	specification	15b	D	Explain how to the use the prediction model.	NA				
Model Image: Constraint of the prediction model. 8-9	Model	16	D;V	Report performance measures (with CIs) for the prediction model.	8-9				
Model- 17 V If done report the results from any model undating (i.e. model specification model performance) NA	Model-	17	V	If done report the results from any model undating (i.e., model specification, model performance)	NA				
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Discuss any limitations of the study (such as nonrepresentative sample, faw events per predictor									
Limitations 18 D;V Discuss any minimations of the study (such as nonrepresentative sample, rew events per predictor, 11 missing data).	Limitations	18	D;V	missing data).	11				
Interpretation 19a V For validation, discuss the results with reference to performance in the development data, and any other NA	Interpretation	19a	V	For validation, discuss the results with reference to performance in the development data, and any other validation data.	NA				
Interpretation 19b D;V Give an overall interpretation of the results, considering objectives, limitations, results from similar studies, and other relevant evidence. 9-11	Interpretation	19b	D;V	Give an overall interpretation of the results, considering objectives, limitations, results from similar studies, and other relevant evidence.	9-11				
Implications 20 D;V Discuss the potential clinical use of the model and implications for future research. 11	Implications	20	D;V	Discuss the potential clinical use of the model and implications for future research.	11				
Other information									
Supplementary information 21 D;V Provide information about the availability of supplementary resources, such as study protocol, Web S.Tal	Supplementary information	21	D;V	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	S.Tab				
Funding 22 D;V Give the source of funding and the role of the funders for the present study. 12	Funding	22	D;V	Give the source of funding and the role of the funders for the present study.	12				

Items relevant only to the development of a prediction model are denoted by D, items relating solely to a validation of a prediction model are denoted by V, and items relating to both are denoted D;V.