Outcome Prediction in Clinical Researches: Common mistakes

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We were interested to read the article by Li et al. published in the June 2012 issue of *CNS Neurosci Ther*. The authors report that medical records of all cases with Intracerebral Hemorrhage (ICH) in their hospital from January 2008 to August 2009 were reviewed [1]. As the authors point out in their conclusion, the Intracerebral Hemorrhage Index (ICHI) can be a simple predictive model and complementary to other prognostic models [1]. Why did the authors not test their model in a new cohort to confirm its predictive ability or divide their cohort into two and develop the model on one half and test it on the other? Or at least use other methods such as bootstrapping to test the reliability of their model? [2–4]

They have reported that a formula of ICH index [ICHI = age (years)/10 + glucose (mmol/L) + WBC (10⁹/L) – GCS score] was established and the receiver operating characteristic (ROC) analyses were performed to estimate the predictive value of the ICHI showing an area under the ROC curve (AUC) of 0.92 (95% CI: 0.88–0.96, $P < 0.001$) [1]. ROC is usually used for evaluating diagnostic accuracy of a model instead of prediction value of that

model. Furthermore, even if the dataset used (Hospital routine data) for developing the model is the true representative of all patients with ICH; the predictive value of the model should be validated using appropriate methods for its external validity (generalizability) [2–4].

As a rule of thumb, in prediction studies, we need two separate cohort dataset for developing and validation of our predictive model; therefore, using routine dataset will have limited value for the prediction of an outcome [2–4].

Conflict of Interest

The authors declare no conflict of interest.

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