LETTER TO THE EDITOR

Letter to the Editor regarding Kim et al: "Predicting adverse events, length of stay, and discharge disposition following shoulder arthroplasty: a comparison of the Elixhauser Comorbidity Measure and Charlson Comorbidity Index"

To the Editor:

We read with interest the article published recently in the *Journal of Shoulder and Elbow Surgery* by Kim et al.[2] The aim of the authors was to determine whether the Elixhauser Comorbidity Measure or Charlson Comorbidity Index were superior in predicting inpatient adverse events, deaths, length of stay, and discharge disposition after shoulder arthroplasty. For this purpose, 90,491 patients who had undergone a total or reverse total shoulder arthroplasty between 2002 and 2014 were included.

Logistic regression models were constructed with basic demographic variables, and the ability of the Elixhauser Comorbidity Measure or the Charlson Comorbidity Index to predict inpatient deaths, complications, extended length of stay, and discharge disposition were assessed. The predictive discrimination of each model was evaluated using the concordance (C) statistic.[2]

We congratulate the authors for their valuable work, but we would like to explain some issues about this study. The data for prediction studies must be from 2 different cohorts, or a cohort should be divided into 2 parts. The first part is used for developing the prediction model, and the second part is used to validate it. If the validity of the prediction model fails, the main results of the research will be misleading. Validation of a prediction model should be done by applying different approaches, such as split file, bootstrapping, or other well-known validation methods. The present study did not investigate the validity of the prediction model, and only the performance of the model was obtained using area under the receiver operating characteristic curve and C statistics.[3]

Selection of the best model is an important step in building any model and prediction study. There are several ways to do this. Cross-fold analysis and Akaike information criterion or Bayesian information criterion are commonly used.[4]

A final issue is related to the interactions between important variables. When these interactions are ignored in the prediction model, the final results will be dramatically affected and will produce misleading outcomes.[1]

Given these comments about prediction models, the authors' results should be interpreted with caution.

Disclaimer

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