New Findings on Predictive Methods for Stroke-Associated Pneumonia

Ya-ming Li, Jian hua Xu[*]

Department of Neurology, Jiading District Central Hospital Affiliated Shanghai University of Medicine & Health Sciences, Shanghai, China

DESCRIPTION

We collected 2366 patients with acute ischemic stroke, and then divided them into the Stroke-Associated Pneumonia (SAP) group and non-SAP group. Of the 2366 patients, 459 were diagnosed with SAP. Subsequently, we discovered two new predictors of SAP. To the best of our knowledge, our study was the first to find that a high International Normalized Ratio (INR) (odds ratio=37.981; 95% confidence interval, 7.487-192.665; P<0.001) might predict SAP events in patients with acute ischemic stroke. In addition, we first proposed walking ability within 48 hours of admission (WA) (odds ratio=0.395; 95% confidence interval, 0.287-0.543; P<0.001) as a predictive indicator of SAP and found that this indicator was a protective factor. Furthermore, we designed a simple and practical SAP prediction model (AUC: 0.851) which included age, homocysteine, INR, history of chronic obstructive pulmonary disease, dysphagia, and WA. And, the model showed good accuracy.

Stroke-Associated Pneumonia (SAP) is a common cause of disability or death. Preventive antibiotic therapy does not improve functional outcomes in relatively unselected patients with stroke [1,2]. On the contrary, actively searching for signs of infections and prophylactic use of antibiotics are beneficial for patients at high risk of infection [3,4]. Factors that have been found to predict the occurrence of SAP include age, sex, smoking, pre-stroke Modified Rankin Scale (MRS), National Institutes of Health Stroke Scale (NIHSS), dysphagia, history of various diseases (e.g., atrial fibrillation, cardiac valve disease, chronic obstructive pulmonary disease, congestive heart failure, diabetes, etc.), and predictors in the blood (e.g., interleukin-6, interleukin-10, procalcitonin, C-reactive protein, leukocyte count, lymphocyte count, neutrophil-to-lymphocyte ratio, etc.) [5-9]. although so many predictors have been discovered, a method that can predict the occurrence of SAP with great accuracy has not yet been established. In this study, the authors discovered two new predictors of SAP and built a relatively accurate predictive model. They found for the first time that

INR may be an independent predictor of SAP. In addition, INR is generally a routine examination index for admission of acute stroke patients, so it does not increase the economic burden on patients. Moreover, the items included in the predictive model are common and readily available. Therefore, the model has good economics and feasibility. Furthermore, it also has relatively high accuracy (AUC: 0.851). These findings may help identify high-risk patients with SAP and provide a reference for the timely use of preventive antibiotics. Subsequent studies should combine the above findings with proven reliable predictors to establish a model that can accurately predict the occurrence of SAP. Maybe it can be complicated, but if it is very accurate, it would be very meaningful to guide the use of prophylactic antibiotics, thereby reducing the occurrence of SAP. If possible, it is best to find out the key initiation factor for the occurrence of SAP, and try to prevent the initiation factor from functioning, thereby preventing the development of SAP in stroke patients and improving the outcomes of these patients.

CONCLUSION

We found that a higher INR and no WA could predict SAP in patients with acute ischemic stroke. In addition, we designed a simple and practical predictive model for SAP, which showed relatively good accuracy.

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