LETTER

Comparison of Current Methods with Neutrophil-to-Lymphocyte Ratio in Predicting Stroke-Associated Pneumonia [Letter]

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Dear editor

We read this study[1] with great interest. The concept of stroke-associated pneumonia (SAP) was first proposed by Hilker in 2003.[2] It is one of the important risk factors for death after stroke, and it increases the length of hospital stay and medical expenses, which brings a heavy burden to the family and society. In this article, the authors select a common clinical parameter in comparison of C reactive protein level for the prediction of the incidence of SAP. This is a novel idea and could be promoted in clinical practice.

However, there might be three points need to be mentioned for the readers.

1. The SAP criteria is slightly different compared to previous guidelines.[3] In this study, the authors cited Chinese domestic expert consensus of SAP diagnosis. This might lead to slight bias in future research. Better illustrated data regarding the usage of different criteria might be a more convincing article.
2. For the application of prediction of SAP, we need to be more careful in first comparing the non-superiority of this prediction model with current available scores.

Since 2012, a number of studies[4] have used multivariate regression models to design different SAP prediction scores, based on stroke-related risk factors, including stroke-induced immunosuppression, dysphagia, age, gender, smoking, stroke severity, stroke type, stroke location, level of consciousness, feeding method, application of acid inhibitors, admission to the intensive care department, combined with hypertension, diabetes, history of chronic respiratory diseases, and history of atrial fibrillation, etc. Among these risk factors, stroke-induced immunosuppression and dysphagia are important independent risk factors for SAP.

In 2018, a multicenter observational study[5] of external validation of the SAP predicting score ISAN, A2DS2, and AIS-APS was carried out, with the conclusion of recommending AIS-APS score for future clinical trials.

Future comparison of the clinical parameter of Neutrophil-to-Lymphocyte Ratio with AIS-APS score will be more convincing for the neurologists in clinical practice.

1. A study by Cheng et al[6] showed that higher monocyte-to-lymphocyte ratio (MLR) was significantly associated with SAP in AIS patients. Another study by Cao et al[7] shows that a high MLR is an independent risk factor for SAP and has a predictive value for severe pneumonia in patients with SAP. Compared to this article, the authors use neutrophils rather than monocytes in the ratio. A comparison between these two might also be helpful in determining the clinical significance.

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Nevertheless, thanks to the authors, we have a better understanding in interpreting the clinical values of the auxiliary examination. SAP-related research fields have accumulated more clinical evidence, especially the evidence from the Chinese population, and our understanding of SAP has been further deepened.

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Disclosure

The authors report no conflicts of interest for this communication.

References

1. Wu T, Zhang H, Tian X, Cao Y, Wei D, Wu X. Neutrophil-to-lymphocyte ratio better than high-sensitivity C-reactive protein in predicting stroke-associated pneumonia in afebrile patients. *Neuropsychiatr Dis Treat*. 2021;17:3589–3595. doi:10.2147/NDT.S340189
2. Hilker R, Poetter C, Findeisen N, et al. Nosocomial pneumonia after acute stroke: implications for neurological intensive care medicine. *Stroke*. 2003;34(4):975–981. doi:10.1161/01.STR.0000063373.70993.CD
3. Smith CJ, Kishore AK, Vail A, et al. Diagnosis of stroke-associated pneumonia: recommendations from the pneumonia in Stroke Consensus Group. *Stroke*. 2015;46(8):2335–2340. doi:10.1161/STROKEAHA.115.009617
4. Ji R, Shen H, Pan Y, et al. Novel risk score to predict pneumonia after acute ischemic stroke. *Stroke*. 2013;44(5):1303–1309. doi:10.1161/STROKEAHA.111.000598
5. Zapata-Arriaza E, Moniche F, Blanca P-G, et al. External validation of the ISAN, A2DS2, and AIS-APS scores for predicting stroke-associated pneumonia. *J Stroke Cerebrovasc Dis*. 2018;27(3):673–676. doi:10.1016/j.jstrokecerebrovasdis.2017.09.059
6. Cheng H-R, Song J-Y, Zhang Y-N, et al. High monocyte-to-lymphocyte ratio is associated with stroke-associated pneumonia. *Front Neurol*. 2020;11:575809. doi:10.3389/fneur.2020.575809
7. Cao F, Wan Y, Lei C, et al. Monocyte-to-lymphocyte ratio as a predictor of stroke-associated pneumonia: a retrospective study-based investigation. *Brain Behav*. 2021;11(6):e02141. doi:10.1002/brb3.2141