ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ESMO OPEN SCIENCE FOR OPTIMAL CANCER CARE

CORRESPONDENCE

Comments on 'Biomarkers of systemic inflammation predict survival with first-line immune checkpoint inhibitors in non-small-cell lung cancer'

We read with great interest the original research paper 'Biomarkers of systemic inflammation predict survival with first-line immune checkpoint inhibitors in non-small-cell lung cancer', by Stares et al. published by *ESMO Open.*[1] In the study, the authors evaluated the prognostic significance of various biomarkers of the systemic inflammatory response, for example, neutrophil count, neutrophil/lymphocyte ratio, platelet/lymphocyte ratio, prognostic nutritional index, and serum albumin level, in patients receiving first-line pembrolizumab for advanced non-small-cell lung cancer (NSCLC). In addition, they created the Scottish Inflammatory Prognostic Score based on two factors, albumin and neutrophil count, which were independent prognostic factors for progression-free survival and overall survival on multivariate analysis in their study. We believe that the novel score is very useful in terms of its low cost, ease of implementation, and objectivity. We would like to make additional comments on this paper.

As in this paper, there have been many reports on the relationship between serum inflammatory markers and the effect of immune checkpoint inhibitor therapy in patients with advanced NSCLC, and as mentioned in the paper, the factors have been combined to score each other and the usefulness of the score has also been reported, such as the lung immune prognostic index (LIPI), the advanced lung cancer inflammation index (ALI), and the albumin—bilirubin grade.[2-4] Thus, there are many biomarkers using serum inflammatory markers, and in the end, it is unclear which biomarker is the best one.

The main statistical method to use in such cases is to conduct the multivariate Cox regression hazards model. When conducting the multivariate Cox regression hazards model using the variables that have significant prognostic value for survival on univariate analysis, the correlation coefficient among the included variables can be problematic. In such cases, we would like to recommend calculating and comparing the time-dependent area under curves (AUCs) for receiver operating characteristic (ROC) curve analyses of survival for each factor. In doing so, we can identify which of the included variables is the most superior prognostic marker, especially for short-term prognosis or long-term prognosis. We have previously used such a statistical approach in a similar study,[5] and we would like to recommend that the authors should include the other inflammatory markers, including inflammatory scores such as LIPI, ALI, and the albumin—bilirubin grade, in the analyses and use the above statistical method. We believe that doing so might improve this study.

There are many prognostic factors in patients with advanced NSCLC treated with immune checkpoint inhibitor. We need to compare the AUCs for ROC curve analyses of survival for each factor and reveal which is the most superior prognostic factor in the future study.

Thank you for a very interesting study.

K. Takada[1] & S. Takamori[2]*

[1]*Department of Surgery, Saiseikai Fukuoka General Hospital, Fukuoka;*
[2]*Department of Surgery and Science, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan*
(*E-mail: shinkichi.takamori@gmail.com).

Available online xxx

https://doi.org/10.1016/j.esmoop.2022.100599
DOI of original article: https://doi.org/10.1016/j.esmoop.2022.100445

FUNDING

None declared.

DISCLOSURE

The authors have declared no conflicts of interest.

REFERENCES

1. Stares M, Ding TE, Stratton C, et al. Biomarkers of systemic inflammation predict survival with first-line immune checkpoint inhibitors in non-small-cell lung cancer. *ESMO Open*. 2022;7:100445.
2. Mezquita L, Auclin E, Ferrara R, et al. Association of the lung immune prognostic index with immune checkpoint inhibitor outcomes in patients with advanced non-small cell lung cancer. *JAMA Oncol*. 2018;4:351-357.
3. Mountzios G, Samantas E, Senghas K, et al. Association of the advanced lung cancer inflammation index (ALI) with immune checkpoint inhibitor efficacy in patients with advanced non-small-cell lung cancer. *ESMO Open*. 2021;6:100254.
4. Takada K, Takamori S, Shimokawa M, et al. Assessment of the albumin-bilirubin grade as a prognostic factor in patients with non-small-cell lung cancer receiving anti-PD-1-based therapy. *ESMO Open*. 2022;7:100348.
5. Takamori S, Takada K, Shimokawa M, et al. Clinical utility of pretreatment Glasgow prognostic score in non-small-cell lung cancer patients treated with immune checkpoint inhibitors. *Lung Cancer.* 2021;152:27-33.