European Journal of Radiology Open 9 (2022) 100409

Contents lists available at ScienceDirect

European Journal of Radiology Open

journal homepage: www.elsevier.com/locate/ejro

Response to: A commentary on "Clinical and CT patterns to predict EGFR mutation in patients with non-small cell lung cancer: A systematic literature review and meta-analysis"

We appreciate the insightful comments made by our colleague regarding our paper entitled "Clinical and CT patterns to predict EGFR mutation in patients with non-small cell lung cancer: A systematic literature review and meta-analysis" [1].

The commentator mentioned that certain variables showed a substantial heterogeneity, specifically GGO (80.3%), spiculation (51.2%), early disease stage (55.2%), non-smoker status (64.6%), and female gender (67.7%). Therefore, performing a meta-analysis would be inappropriate if heterogeneity could not be explored [2]. Also, the commentator suggested that the significant heterogeneity in these variables could be caused by the different subtypes of lung adenocarcinoma and by the fact that GGO is more related to EGFR mutation in exon 21 [2].

As authors of the manuscript, we believed that the significant heterogeneity shown in our meta-analysis represents a limitation of the study that ideally should have been explored through a multivariate meta-regression model. However, most of the studies in our meta-analysis barely reported the invasiveness predominance of the tumor and the exon mutation affected, limiting the development of a meta-regression model based on these variables.

As mentioned by the commentators, we decided to perform a random effect model to deal with the significant heterogeneity. The advantage of the random effect model is that it redistributes the weight of the studies almost proportionally; therefore, the studies with substantial sample sizes are less prone to change the overall effect, leading to a certain degree of robustness of the results [3].

Lee et al. published a paper in which they suggested that EGFR mutation in exon 21 is associated with the presence of GGO [4]. However, we are currently working on a meta-analysis to analyze the differences in CT patterns according to exon mutation. The preliminary results of this study showed no statistically significant results for GGO, which suggests that GGO is not predominant neither for exon 19, nor for exon 21, indicating that the results provided by Lee et al. may represent a false positive. The results of this meta-analysis will be published soon throughout the year.

We consider that the heterogeneity between studies presented in "Clinical and CT patterns to predict EGFR mutation in patients with non-small cell lung cancer: A systematic literature review and meta-analysis" may be caused by a marked difference between the sample sizes of the articles included.

Ethics approval and consent to participate

This article does not involve human experimentation.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] A.F.H. Ortiz, T.C. Camacho, A.F. Vásquez, V. del Castillo Herazo, J.G.A. Neira, M. M. Yepes, et al., Clinical and CT patterns to predict EGFR mutation in patients with non-small cell lung cancer: a systematic literature review and meta-analysis, Eur. J. Radiol. Open 9 (2022), 100400, https://doi.org/10.1016/j.ejro.2022.100400.

[2] Ali Akhavi Milani, A commentary on the "Clinical and CT patterns to predict EGFR mutation in patients with non-small cell lung cancer: a systematic literature review and meta-analysis", Eur. J. Radiol. Open 9 (2022), 100408 https://doi.org/10.1016/j.ejro.2022.100408.

[3] A.F. Herrera Ortiz, E. Cadavid Camacho, J. Cubillos Rojas, T. Cadavid Camacho, S. Zoe Guevara, N. Tatiana Rincón Cuenca, A. Vásquez Perdomo, V. Del Castillo Herazo, R. Giraldo Malo, A practical guide to perform a systematic literature review and meta-analysis, Princ. Pract. Clin. Res. 7 (4) (2022) 47–57, https://doi.org/10.21801/ppcrj.2021.74.6.

[4] H.J. Lee, Y.T. Kim, C.H. Kang, B. Zhao, Y. Tan, L.H. Schwartz, T. Persigehl, Y. K. Jeon, D.H. Chung, Epidermal growth factor receptor mutation in lung adenocarcinomas: relationship with CT characteristics and histologic subtypes, Radiology 268 (1) (2013) 254–264, https://doi.org/10.1148/radiol.13112553.

Andrés Felipe Herrera Ortiz[a,b,*], Tatiana Cadavid Camacho[c], Andrés Francisco Vásquez[a,b], Valeria del Castillo Herazo[b], Juan Guillermo Arámbula Neira[b], María Mónica Yepes[a,b], Eduard Cadavid Camacho[d]

[a] *Radiology, Fundación Santa Fe de Bogotá, Bogotá, Colombia*

[b] *Universidad El Bosque, Bogotá, Colombia*

[c] *Fundación Universitaria Sanitas, Bogotá, Colombia*

[d] *Pontificia Universidad Javeriana, Bogotá, Colombia*

[*] Corresponding author at: Radiology, Fundación Santa Fe de Bogotá, Bogotá, Colombia.

E-mail address: Afherrera@unbosque.edu.co (A.F.H. Ortiz).

https://doi.org/10.1016/j.ejro.2022.100409

Received 19 February 2022; Accepted 21 February 2022

Available online 26 February 2022