

Association between bone scan index and activities of daily living in patients with advanced non-small cell lung cancer: methodological issues in cross-sectional study

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Dear Editor-in-Chief,

We read, with great interest, the paper written by Ikuno Ito et al. entitled association between bone scan index and activities of daily living in patients with advanced non-small cell lung cancer that was published in 2017. The authors aimed to study the association between the bone scan index (BSI) and activities of daily living (ADL) in patients with advanced non-small cell lung cancer (NSCLC). It was concluded that a higher value of the BSI (≥ 1.0) is an independent predictor of poor ADL in patients with advanced NSCLC [1]. However, although this was a valuable investigation and its findings were very interesting, some methodological issues should be considered.

First, Suzanne Ikuno Ito et al. [1] evaluated the predictor of elevated higher value of the BSI (≥ 1.0) in a cross-sectional study, whereas longitudinal studies are most important for

making assumptions for clinical prediction models [2]. In other words, the temporality assumption (the dependent variable has to occur after the independent variable) must be ensured in the prediction model. Thus, prediction models resulting from cross-sectional designs can be misleading [2–4].

Second, if variable of higher value of the BSI (≥ 1.0) is considered as independent predictor, then elevated ALT is an optimistic interpretation. The internal and external validation of the prediction model must be done through bootstrapping and split-validation, respectively [5]. Therefore, according to the above explanation, it is necessary to take these points into consideration at the time of interpretation of results of this study for readers.

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