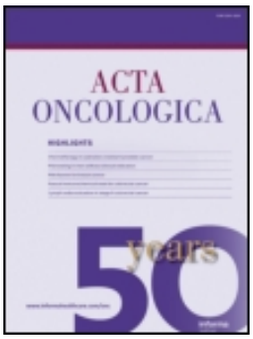

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# F18-FDG-PET/CT standardised uptake value threshold in discriminating benign vs. malignant lesions. Doubts and certainties in the era of evidence-based medicine (Response to Letter to the Editor)

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**To the Editor,**

We greatly appreciate the interest of Drs. F. Bertagna and R. Giubbini in our study, in which we concluded that a common SUVmax threshold did not exist in the four studied subgroups – solitary pulmonary nodules (SPNs) and respective mediastinal lymph nodes (LN), cervical LN staging of head and neck cancer as well as characterisation of adrenal lesions in cancer patients [1]. We found that the highly variable FDG uptake in benign and malignant SPNs as well as mediastinal LNs was associated with the high prevalence of inflammation and/or infection within the chest, resulting in the high maximum standard uptake values (SUVmax) threshold of 3.6. Thus, the use of SUVmax threshold might be less reproducible and reliable in distinguishing benign from malignant lesions within the chest. In contrast, the FDG uptake in benign and malignant cervical LNs as well as adrenal lesions was less variable and was associated with a lower prevalence of inflammatory and/or infectious processes, resulting in a lower SUVmax threshold of 2.2 and higher diagnostic accuracy. Therefore, SUVmax threshold might be reproducible and reliable for extrathoracic regions where there is a low prevalence of inflammation and infection.

In this context, our results are in agreement with the notion made by Drs. Bertagna and Giubbini that inflammatory and infectious diseases frequently show high SUVmax values not significantly different from those seen in malignant tumors. We also agreed with the notion that many benign lesions such as thyroid adenomas and hepatic adenomas often show high SUVmax values similar to those seen in malignant tumors, making it difficult to distinguish between benign and malignant thyroid lesions as well as liver lesions. We acknowledge that an evaluation of SUVmax threshold of these two tumour entities would have been interesting but would be beyond the scope of our study. Thus, the results of our study are primarily applicable to the four tumour entities and site locations being studied. We cannot agree more with Drs. Bertagna and Giubbini that the integration of all information is important for an accurate diagnosis. As we pointed out in our work, the likelihood of malignancy within a lesion is influenced by the

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patient characteristics (e.g. age, history of smoking, history of cancer, and other factors), the presence of co-morbidity (e.g. granulomatous disease), and the appearance of the lesion on CT, especially when reading a PET/CT scan. PET/CT interpretation should therefore include all relevant clinical and radiological information specific to the patient in question, together with an appreciation of the clinical implications of the FDG avidity of the lesion.

***Declaration of interest:*** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

## Reference

[1] Nguyen NC, Kaushik A, Wolverson MK, Osman MM. Is there a common SUV threshold in oncological FDG PET/CT, at least for some common indications? A retrospective study. Acta Oncol Epub 2011.