LETTER TO THE EDITOR

PET imaging of COVID-19: the target and the number

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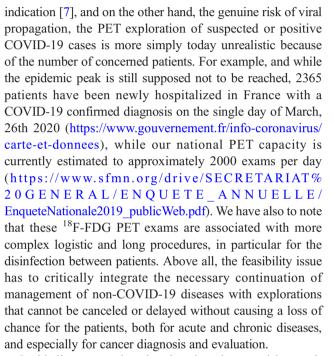
In the context of COVID-19 worldwide outbreak, first reports are being published on the potential value of PET imaging. A total of 5 highly suspected or confirmed COVID-19 cases explored with ¹⁸F-FDG PET have been so far described by Oin et al. [1] and Zou and Zhu [2], at the diagnostic step, showing lung hypermetabolic pulmonary ground glass opacities with low-dose CT correspondence, frequently associated to lymph nodes hypermetabolism. More broadly, Deng et al. [3] also argue for the possible ¹⁸F-FDG PET utility, as a sensitive tool to detect and monitor inflammatory diseases, such as viral pneumonia, monitor disease progression, and treatment outcomes, according to the major goals of precision medicine in which PET imaging is well-known to be crucially involved [4]. On the opposite, Joob and Wiwanitkit have recalled that ¹⁸F-FDG PET is still not recommended in infectious pneumonia, and especially warned of the risk of disease spreading in PET departments [5].

Besides these justified arguments, on one hand, the potential interest of PET imaging to better understand and characterize the disease, especially perhaps between the infectious and immune phases of the disease [6], with possibly also the interest of the targeted development of ImmunoPET in this

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In this line, targeted explorations based on precision medicine seem hardly compatible with mass exploration of numerous patients without delay and in a very short time period. Besides cutting-edge PET investigations currently applied on selected patients and on specific indications, this contradiction highlights the further need of development of light PET protocols as previously developed in radiology for today the very useful low-dose thoracic CT [8], allowing broader exploration availability with shorter procedures for acquisition duration and perhaps also for the uptake period, but probably by preserving the whole-body exploration to better characterize the extension of the disease and its prognosis. New technological achievements based on ultra-low dose whole-body PET instrumentation [9] combined with deep neural networks for reconstruction including generative adversarial networks [10, 11] constitute a great opportunity for such developments which need to be encouraged, with also ultimately possible larger applications in other contexts for example for cancer screening [12].



Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Research involving human participants and/or animals and informed consent This article does not contain any studies with human participants or animals performed by any of the authors.

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