

Pitfalls in FDG-PET Imaging of Infection and Inflammation

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The role of nuclear medicine techniques to diagnose infectious and inflammatory diseases has expanded tremendously the last years. Especially, FDG-PET/CT imaging has emerged as a powerful tool in patients with infectious or inflammatory disorders, not only as a diagnostic tool, but also for therapy evaluation. Many infectious and inflammatory indications already exist in which the use of FDG-PET/CT is recommended, and these indications are still expanding. FDG-PET/CT can be used to screen for an infection or inflammation (e.g. in patients with fever of unknown origin), to stage an already proven infection (which organs are involved), to help the clinician to decide which diagnosis is most probable, to provide the best location for a biopsy to settle a diagnosis, for therapy decision making, and for therapy evaluation. However, several pitfalls and limitations exist for the use of FDG-PET/CT in infectious and inflammatory diseases and both the referring clinician and the nuclear medicine specialist have to be aware of this.

In this presentation, the general pitfalls and limitations of FDG-PET/CT imaging of infectious and inflammatory diseases will be discussed.

First of all, the imaging request is very important to define the expected outcome of the requested study to be able to perform the proper acquisition protocol and the correct patient preparation. Several factors exist that may influence the uptake and interpretation, including physiological uptake patterns, and pitfalls related to medication or localization.

Then, an overview will be provided of pitfalls related to specific indications, such as vasculitis, cardiovascular infections, musculoskeletal infections, fever of unknown origin, and response monitoring.

In the last part of the presentation, some future potential solutions for these pitfalls will be discussed, such as the use of PET-MRI, dual time point imaging, and the use of new specific radiopharmaceuticals.

References:

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