Positron emission tomography for intracranial metastases

Anatomic imaging modalities including standard MRI have limitations in accurately characterizing post-therapeutic reactive changes and treatment response. Molecular imaging techniques such as positron emission tomography (PET) characterize specific metabolic and cellular features of metastases, potentially providing clinically relevant information supplementing anatomic MRI. The RANO working group provides recommendations for the use of PET imaging in the clinical management of patients with BM based on evidence from studies validated by histology and/or clinical outcome [1].

The use of PET with radiolabeled amino acids, in particular, has been validated as an important diagnostic tool in brain cancer [2]. [3] [4] [5].

The overexpression of LAT1 transports in BM make intracranial metastases a compelling target for amino acid PET imaging [6].

Fink in 2013 stated that nuclear medicine studies including FDG PET and other molecular imaging may play a larger role in the future. [7].

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