Scottish Clinical Imaging network

NHS National Services Scotland

INDICATIONS FOR THE USE OF ^{18}F FDG PET CT FOR PATIENTS WITH BRAIN TUMOURS IN SCOTLAND

Background

Original guidance on this topic was produced in 2016 by the Scottish Adult Neuro-Oncology Network (SANON) in conjunction with Scottish Clinical Imaging Network (SCIN) PET-CT working group. This revision is part of a planned wider review of PET CT indications. There has been no significant change in the evidence base identified and as a result there has been no significant alteration to the previously agreed indications.

Due to the high background FDG uptake in normal brain tissue distinguishing tumour from normal tissue is not straightforward and as such there is no routine role for PET CT in the staging and diagnosis of primary brain tumours. The exception to this is suspected primary CNS lymphoma (PCNSL), which shows very high uptake with FDG. However, as biopsy is always indicated before treatment, PET has no role in initial diagnosis.

Many studies have demonstrated that amino acid tracers are more accurate than FDG PET, contrast enhanced MRI or CT at distinguishing recurrent tumour from effects of therapy, such as post-operative gliosis or post chemoradiotherapy change. A variety of tracers have been investigated including 11C methionine, 18F fluoroethyl tyrosine and 18 F fluorodopa. If distinguishing recurrent tumour from post therapy effects will alter treatment plans, 11C methionine PET (often referred to as met-PET) is indicated, or imaging with one of the other tracers, as available locally.

As in all instances, PET CT should only be considered where the result is likely to directly influence individual patient outcomes and management.

Routine indications

- Whole body FDG PET is indicated in suspected cases of neurological paraneoplastic syndrome, where body CT/MRI imaging fails to identify a primary site
- Whole body FDG PET is indicated in suspected cases of cancer of unknown primary presenting as a brain metastasis, where body CT/MRI imaging fails to identify a primary site and identification of the primary site would alter existing management plan

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Non routine

- FDG PET may be indicated in suspected PCNSL, only if the result of this investigation would alter existing management plan

- Met-PET (or other tracer that is sensitive to protein synthesis) is indicated where it is important to distinguish between tumour progression and treatment effect and this would alter existing management plan

Future Considerations

This guidance will be reviewed on an ongoing basis to incorporate changes to the evidence base, tracer development and availability, and clinical guidelines.

References

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